FARGO


# DTC400/DTC300/DTC300M Card Printer User Guide (Rev. 1.1)

Designed for Microsoft® Windows®XP

**Part Number:** XXXXXX

DTC400/DTC300/DTC300M Card Printer User Guide (Rev. 1.1), property of Fargo Electronics, Incorporated



The revision number for this document will be updated to reflect changes, corrections, updates and enhancements to this document.

| **Revision Control Number** | **Date** | **Document Title** |
|---|---|---|
| Revision 1.1 | 1 September 2004 | DTC400/DTC300/DTC300M Card Printer User Guide (Rev. 1.1) |
| Revision 1.0 | 1 July 2004 | DTC400/DTC300/DTC300M Card Printer User Guide (Rev. 1.0) |

These reference documents were thoroughly reviewed to provide Fargo with professional and international standards, requirements, guidelines and models for our technical, training and user documentation. At all times, the *Copyright Protection Notice* for each document was adhered to within our Fargo documentation process. This reference to other documents does not imply that Fargo is an ISO-certified company at this time.

ANSI/ISO/ASQ Q9001-2000 American National Standard, (sub-title) Quality Management Systems - Requirements (published by the American Society of Quality, Quality Press, P.O. Box 3005, Milwaukee, Wisconsin 53201-3005)

The ASQ ISO 9000:2000 Handbook (editors, Charles A. Cianfrani, Joseph J. Tsiakals and John E. West; Second Edition; published by the American Society of Quality, Quality Press, 600 N. Plankinton Avenue, Milwaukee, Wisconsin 53203)

Juran's Quality Handbook (editors, Joseph M. Juran and A. Blanton Godfrey; Fifth Edition, McGraw-Hill)

Any questions regarding changes, corrections, updates, or enhancements to this document should be forwarded to:

Fargo Electronics, Incorporated
Support Services
6533 Flying Cloud Drive
Eden Prairie, MN 55344 (USA)
(952) 941-9470
(800) 459-5636
FAX: (952) 941-7836
www.fargo.com
E-mail: sales@fargo.com

# Table of Contents

# Section 1: Introduction

## How to use the manual

The DTC400/DTC300/DTC300M Card Printer User Guide (Rev. 1.1) is, in fact, the troubleshooting and User Guide for the entire card Printer. The manual is designed to provide Installers and Technicians with quick, efficient lookup of related procedures, components and terms. The manual can be used effectively either in soft or hard copy, depending on the preference of the Installer or Technician.

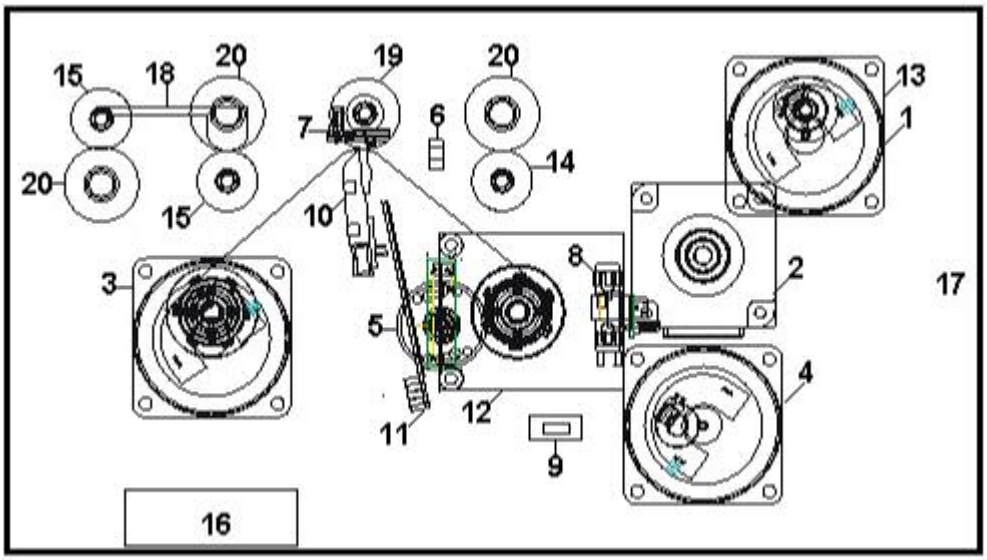
| **Manual** | **Description** |
|---|---|
| Sequence of Operations, Glossary of Terms and Technical/Functional Specifications (hyper-linked) | You can go directly to the Sequence of Operations, Glossary of Terms, Technical Specifications and Functional Specifications to learn how to use the processes, procedures, functions and windows for the card Printer within concise, correlative tables. |
| Table of Contents (hyper-linked) | You can use the automated Table of Contents to quickly locate, for example, an error message, a procedure, the index, or an appendix. |
| Troubleshooting, Replacement, Removal, Diagnostic and Navigation Procedures (in hyper-linked Sections) | You can go directly to Specifications, General Troubleshooting, Printer Adjustments, Parts Replacement, Printer Packing, Board Level Diagnostics, LCD On-Line Menu Navigation and Firmware Updates to find troubleshooting, removal and replacement procedures. The section titles are always labeled according to their function for consistent usage. |
| Cross-Referencing (hyper-linked) | You can use the cross-referencing links to quickly locate, for example, an error message or a procedure. |
| Comprehensive Index (hyper-linked) | You can use the COMPREHENSIVE INDEX to quickly locate information on the card Printer, relating to a specification, a procedural step, a window or screen, a component, a term, a qualifier, or a related feature to this Printer. |
| Appendices | You can use Appendix A and B to locate information relating to engineering drawings and technical updates, which are specific to the card Printer. |

# Safety Messages (review carefully)

| Symbol | Critical Instructions for Safety purposes |
|---|---|
| **Danger:**  | **Failure to follow these installation guidelines can result in death or serious injury.**<br>Information that raises potential safety issues is indicated by a warning symbol (as shown to the below).<br>• **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol.<br>• **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified.<br>• **To prevent personal injury**, make sure only qualified personnel perform these procedures. |
| **Caution:**  | **This device is electrostatically sensitive. It may be damaged if exposed to static electricity discharges.**<br>Information that raises potential electrostatic safety issues is indicated by a warning symbol (as shown to the below).<br>• **To prevent equipment or media damage**, refer to the following safety messages before performing an operation preceded by this symbol.<br>• **To prevent equipment or media damage**, observe all established Electrostatic Discharge (ESD) procedures while handling cables in or near the Circuit Board and Printhead Assemblies.<br>• **To prevent equipment or media damage**, always wear an appropriate personal grounding device (e.g., a high quality wrist strap grounded to avoid potential damage).<br>• **To prevent equipment or media damage**, always remove the Ribbon and Cards from the Printer before making any repairs, unless otherwise specified.<br>• **To prevent equipment or media damage**, take jewelry off of fingers and hands, as well as thoroughly clean hands to remove oil and debris before working on the Printer. |

# DTC400/DTC300/DTC300M Card Printer Overview

## Reviewing the DTC400/DTC300/DTC300M Block Diagram




| Motors | |
|---|---|
| 1 | Card Feed |
| 2 | Print Stepper |
| 3 | Ribbon Drive |
| 4 | Print Headlift |
| 5 | Ribbon Rewind Motor |
| | |
| | |
| | |

| Sensors | |
|---|---|
| 6 | Card Feed |
| 7 | Ribbon Sensor |
| 8 | Ribbon Encoder |
| 9 | Headlift Sensor |
| 10 | Printhead Thermistor |
| 11 | Ribbon LED SNR |
| 12 | RFID Antenna |
| | |

| Parts | |
|---|---|
| 13 | Card Input Roller |
| 14 | Cleaning Roller |
| 15 | Card Feed Roller |
| 16 | Printhead Cooling Fan |
| 17 | Card Input Hopper |
| 18 | Magnetic Encoding Head Module |
| 19 | Platen Roller |
| 20 | Pinch Roller |

## Reviewing the DTC400/DTC300/DTC300M Sequence of Operations

The following sequence describes a full color print job with magnetic encoding.

| Step | Process |
|---|---|
| 1 | The File information is received from the PC |
| 2 | Printer checks the installed Ribbon type stored in memory against the Ribbon type command that was sent from the Printer.<br>a. If Ribbon type does not match, the media light will begin flashing. |
| 3 | The Card Input Motor and Print Stepper Motor engage. |
| 4 | The Card Feed Sensor detects leading edge of card and disengages the card input Motor. |

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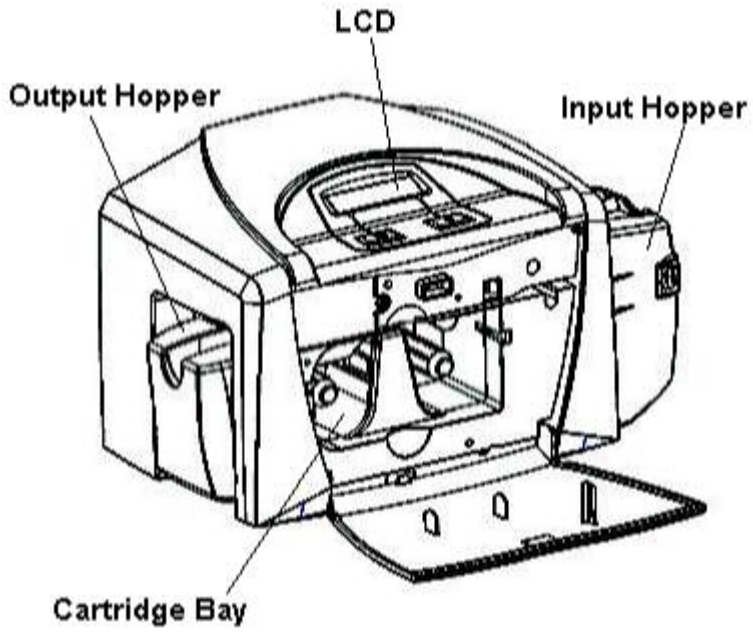

## Reviewing the DTC400/DTC300/DTC300M Sequence of Operations (continued)

| Step | Process |
|---|---|
| **Step** | **Process** |
| 5 | The Print Ribbon Drive engages. |
| 6 | The Print Ribbon Sensor looks for the color transition from Yellow to Magenta. Print Ribbon Encoder detects number of revolutions required to use an entire color panel. |
| 7 | The Print Stepper Motor engages. |
| 8 | The Card Feed Sensor detects trailing edge of card. |
| 9 | The Print Stepper Motor queues card to the middle of the platen Roller. All Stop |
| 10 | The Print Headlift Motor engages. |
| 11 | The Print Headlift Sensor detects closed state. |
| 12 | The Print Headlift Motor disengages. |
| 13 | The Print Stepper Motor engages. |
| 14 | The Print Cover Sensor checks for a closed state. |
| 15 | The Ribbon Drive Motor engages. |
| 16 | The Image data is burned by the Printhead until image data is depleted. All Stop. |
| 17 | The Thermistor engages Printhead Cooling Fan to maintain proper operating temperature. |
| 18 | The Headlift Motor engages. |
| 19 | The Print Headlift Sensor detects an open state. |
| 20 | The Print Headlift Motor disengages. |
| 21 | The Print Stepper Motor engages. |
| 22 | The Print Ribbon Drive engages. |

*Continued on the next page*

## Reviewing the DTC400/DTC300/DTC300M Sequence of Operations (continued)

| Step | Process |
|---|---|
| 23 | The Card Feed Stepper Motor engages to queue card for magnetic encoding. |
| 24 | The Encoding data is written to the card. |
| 25 | The Card Feed Stepper will re-queue card for each verification pass required. |
| 26 | After Ribbon advances a few encoder clicks, assume Ribbon free of card. All Stop. |
| 27 | Repeat steps 9 through 23 for appropriate number of color/overlay panels. |
| 28 | The Card is ejected from the Printer. |
| 29 | All Stop. |

## Reviewing the DTC400/DTC300/DTC300M Boot up Sequence

| Step | Process |
|---|---|
| 1 | On Power up, the Printer checks the current state of the Card Feed Sensor and the Headlift Sensor. |
| 2 | If the Headlift Sensor is found to be open, the Headlift Motor will turn until a closed state is seen. |
| 3 | If the Card Feed Sensor is found to be blocked, the Card Feed Stepper will engage to eject the card. |

# Section 2: Specifications

The purpose of this section is to provide the User with specific information on the Regulatory Compliances, Agency Listings, Technical Specifications and Functional Specifications for the DTC400/DTC300/DTC300M Card Printer User Guide (Rev. 1.1).

## Table of Contents

# Regulatory Compliances

| Term | Description |
|---|---|
| CSA | The Printer manufacturer has been authorized by UL to represent the Card Printer as CSA Certified under CSA Standard 22.2.<br>**File Number:** E145118 |
| FCC | The Card Printer complies with the requirements in Part 15 of the FCC rules for a Class B digital device. (**Note:** These requirements are designed to provide reasonable protection against harmful interference in a residential installation.)<br>If equipment operation in a residential area causes unacceptable interference to radio and TV reception, the operator is required to take whatever steps are necessary to correct the interference. |
| ITS-EMC | The Card Printer has been tested and complies with EN55022 Class B: 1995 and EN61000-3-2, EN61000-3-3 and EN55024:1998 standards for EMI emissions.<br>(**Note:** Based on the above testing, the Printer manufacturer certifies that the Card Printer complies with all current EMC directives of the European Community and has placed the CE mark on the Card Printer.) |
| UL-GS | The Card Printer has been tested and complies with EN 60950-1:2001 and bears the UL-GS mark.<br>**License Number:** 1176 |
| UL | The Card Printer is listed under UL IEC 60950-1 (2001) INFORMATION TECHNOLOGY EQUIPMENT.<br>**File Number:** E145118, Volume 1, Section 22 |

# Agency Listings

| Term | Description |
|---|---|
| EMC Standards | CE, FCC, CRC c1374, BSMI, ITS (EN 55022 Class B:1998, FCC Class B, EN 55024: 1998). |
| Safety Standards | UL IEC 60950-1 (2001), CSA 22.2 No. 60950 and UL-GS (EN 60950-1:2001). |

# Technical Specifications

| Type | Description |
|---|---|
| Accepted Standard Card Sizes | CR-80 (3.375"L x 2.125"W / 85.6mmL x 54mmW) |
| Accepted Card Thickness | 20 mil and 30 mil (.030" / .76mm) |
| Accepted Card Types | PVC or polyester cards with polished PVC finish; monochrome resin required for straight polyester |
| Agency Listings | Safety: UL 1950, CSA C2.2 and TüV-GS (IEC-950) Emissions: FCC Class A, CRC c1374, Class A and TüV-EMC (IEC-801 -2, -3, -4; CISPR 22, Class B), CE, BSMI |
| Card Input Hopper Capacity | 100 cards (30 mil) |
| Colors | **DTC400/DTC300:** Up to 16.7 million (DTC300M): Monochrome |
| Dimensions | 6.7"H x 13.1"W x 10.5"D / 170mmH x 333mmW x 267mmD |

*Continued on the next page*

## Technical Specifications (continued)

| Type | Description |
|---|---|
| Humidity | 20-80% non-condensing |
| Interface | USB 1.1 |
| Memory | 2MB RAM |
| Operating Temperature | 65° to 80° F / 18° to 27° C |
| Print Area | **DTC400/DTC300/DTC300M:** CR-80 edge-to-edge |
| Printer Drivers | Windows 98SE, Me/2000/XP |
| Print Method | • **DTC400/DTC300:** Dye-Sublimation/Resin Thermal Transfer<br>• **DTC300M:** Resin Thermal Transfer |
| Print Speed | • **DTC400/DTC300:** 30 seconds per card / 120 cards per hour (YMCKO)<br>• **DTC300M:** 5 seconds per card / 720 cards per hour (K)<br>(**Note:** Indicates the print Ribbon type and the number of Ribbon panels printed where Y=Yellow, M=Magenta, C=Cyan, K=Resin Black, B=Dye-Sublimation Black and O=Overlay.)<br>• Print speed is measured from the time a card feeds into the Printer to the time it ejects from the Printer.<br>• Print speeds do not include the time needed for the PC to process the image.<br>• Process time is dependent on the size of the file, the CPU, amount of RAM and the amount of available resources at the time of the print. |
| Resolution | 300 dpi (11.8 dots/mm) |

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## Technical Specifications (continued)

| Type | Description |
|---|---|
| Supply Voltage | 100-240 VAC, .6-1.3 A |
| Supply Frequency | 50 Hz/60 Hz |
| System Requirements | IBM-PC or compatible; Windows 98SE, Me, 2000 and XP; Pentium™ class 233 MHz computer with 64 MB of RAM or higher, 200 MB free hard disk space or higher, USB 1.1 |
| Weight | 15 lbs. / 7 kg |

# Visual Security Solutions (Specifications)

## VeriMarkTM Cards - 2-D holographic foil application

VeriMarkTM Cards are a low cost, customized 2-D holographic foil application, that is made in two steps.

- The first step is to emboss a base foil 1.9 cm (L) x 1.3 cm (H) onto the surface of a blank white card.
- The second step is debossing a custom made dye into the surface of the base foil - leaving a customized image, logo or text provided by the customer.
- Two separate color foils are used to contrast the impression.

End Users will be able to choose between 8 different card placements (4 - landscape) and (4-portrait) where the VeriMarkTM can be located. When its time to print through the Driver, the End User will select the location on their organizations card design around which no printing and overlay will be placed.

## Custom HoloMarkTM Cards

A Custom HoloMark TM Card is a three-dimensional holographic image transferred to metal foil and embossed to blank cards. The image is customer specific and the program mirrors our holographic laminates program with a couple exceptions.

## Visual Security - Card Stock Part Numbers

All Visual Security Cards will be offered on the following Fargo Card Stocks only:

- P/NNo. 81754 Ultra Card
- P/NNo. 81762 Ultra Card III with hi-coercivity magnetic stripe
- P/NNo. 81763 Ultra Card III

## Visual Security - Fargo Certified Overlaminates (Special Order in 50 quantity minimum)

- Part No. 82255: PolyGuard 1.0 mil for HoloMarkTM and VeriMarkTM Cards, Clear
- Part No. 82256: PolyGuard 1.0 mil for HoloMarkTM and VeriMarkTM Cards, High Resolution Globe design hologram with "Secure" micro-text

## Visual Security Card Stock - Tolerances

- Tolerance of base foil placement will equal +/- .010" from the nearest edges of the card
- Tolerance of layered foil will equal +/- .010"

## VeriMarkTM - Application Specifications

VeriMarkTM foils will cover a dimensional area of 1.9 cm length x 1.3 cm height. The exclusive areas are as follows:

- VeriMarkTM Card customers will be able to choose 1 of 8 pre-defined placements (corners) via Printer Driver (4 positions) Landscape and (4 Positions) Portrait mode.
- VeriMarkTM foil placement will not interfere with card punch slots .
- Foil color base is silver; debossed impression is gold foil.
- VeriMarkTM foil placement will be located 0.4 cm from the edges of the card except for the top two locations on portrait orientation cards (positions E & F). The foil will be located 0.9 cm from the top of the card and 0.4 cm from the sides of the card.

## HoloMarkTM and Custom HoloMarkTM - Application Specifications

HoloMarkTM and Custom HoloMarkTM foils will cover a dimensional area of 1.5 cm x 1.5 cm. The exclusive areas are as follows:

- HoloMarkTM and Custom HoloMarkTM card end-users will be able to choose 1 of 8 pre-defined placements (corners) via Printer Driver (4 positions) Landscape and (4 positions) Portrait mode.
- HoloMarkTM foil placement will not interfere with card punch slots.
- Foil Color options will be silver or gold.
- Outside edge placement of Foil impression options on card will be 0.4 cm from edge of card.
- HoloMarkTM foil placement options will be at all four corners of card located 0.4 cm from edge of card.

# Functional Specifications

This Card Printer utilizes two different, yet closely related printing technologies to achieve its remarkable direct-to-card print quality for dye-sublimation and resin thermal transfer. The Card Printer will print from any IBM-PC® or compatible running Windows® 98SE, Me, Windows 2000 or Windows XP.

The following describes how each of these technologies works:

| Function | Description |
|---|---|
| Dye-Sublimation | Dye-Sublimation is the print method the DTC400/DTC300/DTC300M uses to produce smooth, continuous-tone images that look truly photographic. (**Note:** This process uses a dye-based Ribbon roll that is partitioned by a number of consecutive color panels.)<br><br>The panels are grouped in a repeating series of these three process colors along the entire length of the print Ribbon: yellow, magenta and cyan or YMC.<br><br>The Printer always prints the yellow panel first, followed by the magenta panel and the cyan panel. (**Note:** As the print Ribbon passes beneath the Printhead, hundreds of thermal elements within the Printhead heat the dyes on the Ribbon. When these dyes are heated, they diffuse into the surface of the card. A separate pass is made for each of the three color panels on the Ribbon.)<br><br>By combining the colors of each panel and by varying the heat used to transfer these colors, it is possible to print up to 16.7 million different shades of color. (**Note:** This blends one color smoothly into the next, producing photo-quality images with absolutely no dot pattern.) |
| Resin Thermal Transfer | Resin Thermal Transfer is the print method the Printer uses to print sharp black text and crisp bar codes, which can be read by both infrared and visible-light bar code scanners.<br><br>• Used to print ultra-fast, one-color ID cards on the DTC400/DTC300/DTC300M. (**Note:** Like dye-sublimation, this process uses the same thermal Printhead to transfer color to a card from a resin-only print Ribbon or the resin black (K) panel of a full color print Ribbon.)<br><br>• Solid dots of resin-based ink are transferred and fused to the surface of the card. (**Note:** This produces durable, saturated printing.) |

## Printer Components: Front Cover

| Components | Description |
|---|---|
| Front Cover | Opens to allow access to the Ribbon Cartridge. (**Note:** This cover must be closed in order for the Printer to begin printing.) |
| Printhead | The component of the Printer that actually does the printing. (**Note:** This component is fragile and must not be bumped or touched with anything other than a cleaning swab.) |
| **Cancel** button | The **Cancel** button turns the Printer ON and OFF. (**Note:** It also serves to cancel the current print job and reset the Printer for the next print job.)<br>If a card is left within the Printer after a print job is canceled, it will automatically be ejected when the Printer is turned back ON. |
| **Pause** button | The **Pause** button is used to pause the Printer during normal operation and also to resume operation after an error condition is cleared. (**Note:** In general, as the icon above this button indicates, errors are related to either the Ribbon or the cards. If an error occurs, the Pause LED will flash.) |
| Card Cleaning Roller | Automatically cleans cards for higher print quality. (**Note:** Clean the Card Cleaning Roller during every Ribbon change (every 250 cards) or as needed.) |
| Card Input Hopper | Load blank cards into this Hopper. |
| Power Port | Connect to the included power cord. |
| USB Port | Connect to a Windows PC with a USB cable. |

## Printer Components: Print Ribbons

The Card Printer utilizes both dye-sublimation and/or resin thermal transfer methods to print images directly onto blank cards. Since the dye-sublimation and the resin thermal transfer print methods each provide their own unique benefits, print Ribbons are available in resin-only, dye-sublimation-only and combination dye-sublimation/resin versions.

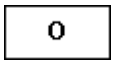
To make it easier to remember which print Ribbons are which, a letter code has been developed to indicate the type of Ribbon panels found on each Ribbon. This letter code is as follows:

= Dye-Sublimation Yellow Panel

= Dye-Sublimation Magenta Panel

= Dye-Sublimation Cyan Panel

= Resin Black Panel



= Clear Protective Overlay Panel

## Printer Components: Resin-Only Print Ribbons

Resin-only print Ribbons consist of a continuous roll of a single resin color. No protective overlay panel (O) is provided since resin images do not require the protection of such an overlay. The following resin-only Ribbon types are available for use with both DTC400/DTC300/DTC300M:

| Type | Description |
|---|---|
| Standard Resin Black (K) (provides 1,000 prints) | This Ribbon provides high resin durability ideal for most general-purpose monochrome ID card applications. Resin black bar codes are readable by both infrared and visible-light bar codes scanners.<br>  |
| Premium Resin Black (K) (provides 1,000 prints) | This Ribbon provides maximum resin durability ideal for applications such as access control where cards are repeatedly swiped through a Magnetic Stripe reader. Resin black bar codes are readable by both infrared and visible-light bar codes scanners.<br>(**Note:** Using a Premium Resin Black Ribbon will provide better photo realistic output.)<br>  |
| Colored Resin<br>(provides 1,000 prints) | Several colored resin Ribbons are available in a variety of colors for customizing or color-coding resin-only ID cards. |
| Metallic Resin<br>(provides 1,000 prints) | Metallic resin Ribbons are available for printing resin images with a unique metallic sheen. |
| | |

## Printer Components: Dye-Sublimation Print Ribbons

Note that the Printer requires both specialized and authorized print Ribbons in order to print and function properly.

| Step | Procedure |
|---|---|
| 1 | Do not run the cards with a contaminated, dull, or uneven surface through the Printer.<br>  **Caution:** Printing onto such cards will ultimately lead to poor print quality and will greatly reduce the life of the Printhead. |
| 2 | Always store the card stock in its original packaging or in a clean, dust-free container. |
| 3 | Do not print onto cards that have been dropped or soiled. (**Note:** Printhead damage caused by contaminated or poor quality cards will automatically void the Printhead's factory warranty.) |
| 4 | If printing onto cards with a pre-punched slot, do not print over the area of the card with the punched slot. (**Note:** To avoid this area when printing, use the options in the Overlay / Print Area tab to omit printing in this area, or punch the slot after the card has printed.) |

Here is the table for Dye-Sublimation-Only Print Ribbon and Dye-Sublimation Black (BO) (provides 500 prints).

| Type | Description |
|---|---|
| Dye-Sublimation-Only Print Ribbon | It is available in a monochrome version. This Ribbon consists of dye-sublimation Ribbon panels which alternate with a clear protective Overlay (O) Panel. Dye-Sublimation images must have an overlay panel applied to them or they will quickly begin to wear or fade. |

## Printer Components: Dye-Sublimation/Resin Print Ribbons

| Type | Description |
|---|---|
| Dye-Sublimation/ resin print Ribbon | The Dye-Sublimation/resin print Ribbon combines the yellow (Y), magenta (M) and cyan (C) dye-sublimation panels with a resin black (K) panel.<br>By combining both types of Ribbon panels, this Ribbon can be used to print full-color, photo-quality images with the dye-sublimation panels along with sharp, black text and bar codes with the resin black panel.<br>A clear overlay panel (O) is also included on most Ribbons to protect the dye-sublimation images. Dye-Sublimation images must have an overlay panel applied to them, or they will quickly begin to wear or fade. |
| Full-Color (YMCKO) (provides 250 prints) | This Ribbon is used to print full-color photo ID cards along with resin black text and bar codes. Both infrared and visible-light bar code scanners can read bar codes printed with resin black.<br>• An overlay panel (O) is included to protect the full-color dye-sublimation printing.<br>  |

## Printer Components: Blank Cards

| Type | Description |
|---|---|
| Card Size | The Card Printer accepts standard CR-80 sized and 20 mil. cards (3.370"L x 2.125"W / 85.6mmL x 54mmW) with a thickness of 30 mil (.030"/.762mm). |
| Card Design | The Printer will print onto any card with a clean, level and polished PVC surface.<br>Although the Printer is equipped with card cleaning Rollers, it is very important to always print onto cards specifically designed for direct-to-card dye-sublimation printing. |
| Card Surface | Suitable cards must have a polished PVC surface free of fingerprints, dust, or any other types of embedded contaminants. In addition, cards must have a completely smooth, level surface in order for the Printer to achieve consistent color coverage.<br>Certain types of Proximity cards have an uneven surface that will inhibit consistent color transfer.<br>• Certain types of smart card chips are raised slightly above the cards surface which also results in poor color transfer. |
| UltraCard Stock | Due to the importance of using high-quality blank cards, a factory-approved card stock called UltraCard™ is available and recommended for best results.<br>• UltraCard stock has a glossy PVC laminate on top and bottom and is optically inspected to provide the cleanest, most scratch and debris-reduced cards possible.<br>• Two types of these cards are available: UltraCard and UltraCard III. UltraCard stock has a PVC core and offers medium card durability. UltraCard III stock has a 40% polyester core and offers high durability.<br>• Both types of UltraCards produce printed images with a glossy, photo-quality finish. |

# Section 3: Setup and Installation Procedures

The following guide will walk you through the installation of the DTC400/DTC300/DTC300M Card Printer Driver.

- **Time Requirement (software):** This software installation process will require approximately 2 to 5 minutes (depending on the speed of your PC).
- **Time Requirement (Printer):** The time required to set up a standard DTC400/DTC300/DTC300M Printer would be approximately 5 to 10 minutes.

The System Requirements are as follows:

IBM-PC or compatible, Windows® 98SE, Me/2000/XP, Pentium® class 233MHz computer with 64MB of RAM or higher, 200MB free hard disk space or higher, USB 1.1

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# Printer Setup and Installation

## Choosing A Good Location

Follow these guidelines:

- Place the unit in a location with adequate air circulation to prevent internal heat build up.
- Use the Printer's dimensions as a guideline for the minimum clearances to the unit. (**Note:** Allow for adequate clearance in front of the unit to accommodate the unit with its Covers open.)
- Do not install unit (a) near heat sources such as radiators or air ducts, or (b) in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

## About Moisture Condensation

If the unit is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense inside the unit. Should this occur, print quality may not be optimum.

Leave the unit turned OFF in a warm, dry room for several hours before using. This will allow the moisture to evaporate.

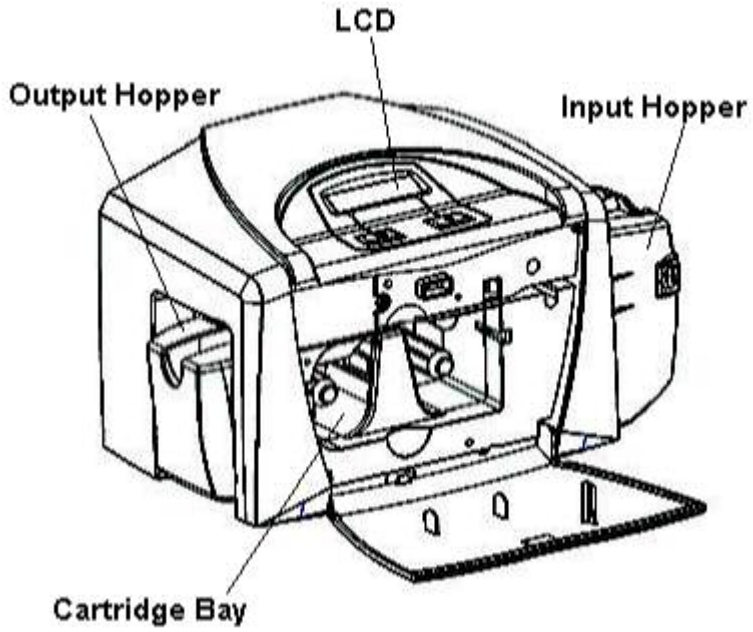
## Unpacking and Inspection

While unpacking your Printer, inspect the carton to ensure that no damage has occurred during shipping. Make sure that all supplied accessories are included with your unit.

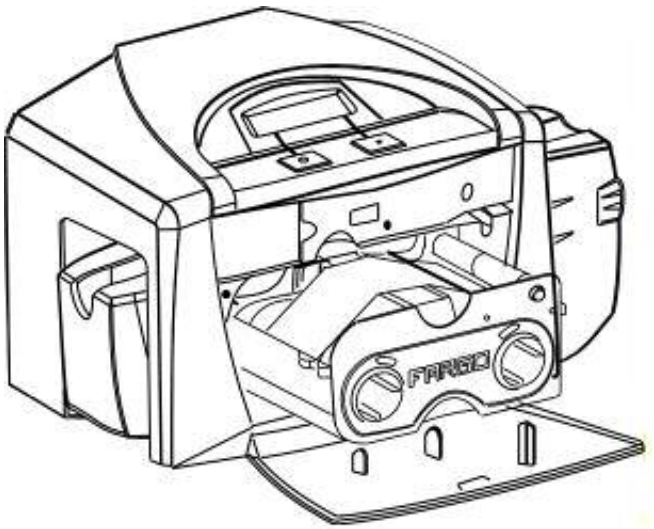
Check that the following items are included:

- Power Supply
- US Power Cable
- Europe Power Cable
- Software Installation CD/User Guide
- User Guide
- Warranty Statement, Registration Card and Compliancy Document

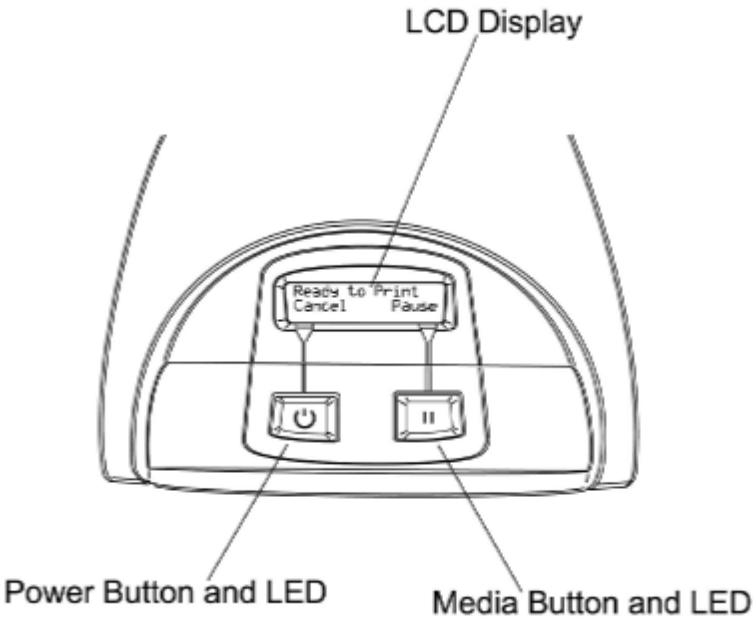
## Reviewing the Printer (front view)




## Reviewing the Printer (front view; Cartridge being installed)



## Reviewing the LCD (top-front part of Printer)

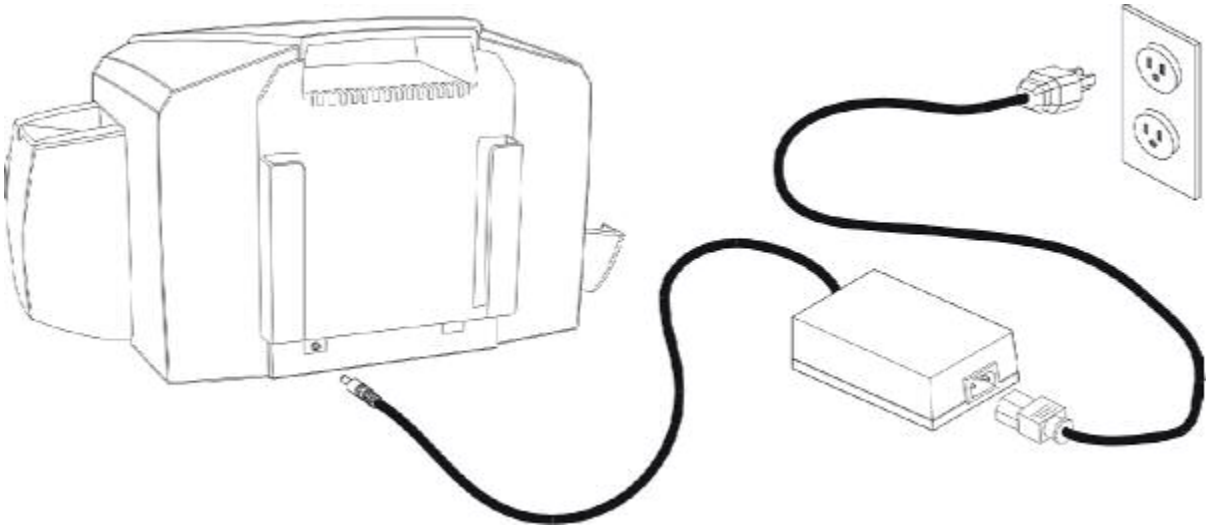


## Connecting the Printer power

Follow this procedure. (**Note:** Do not connect the Printer's USB cable until prompted during the Printer Driver installation.)

| Step | Procedure |
|---|---|
| 1 | Plug the AC adapter power cable into the back of the Printer. See Display A. |
| 2 | Plug the wall power cable into the AC power adapter. |
| 3 | Plug the wall power cable into a standard 110VAC power outlet. |

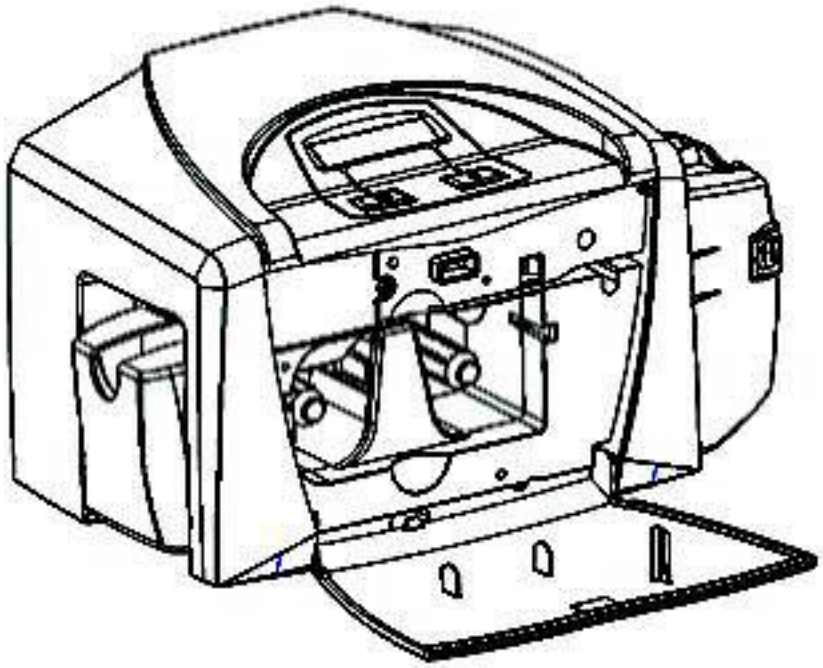
Display A – Shows back of Printer with AC power cable (below).



## Installing the Print Ribbon Cartridge

The Fargo DTC400/DTC300/DTC300M Card Printer uses a one-piece, disposable Ribbon Cartridge load system. Every full color Ribbon Cartridge contains a 250 “full color card count” Ribbon and a Card Cleaning Roller.

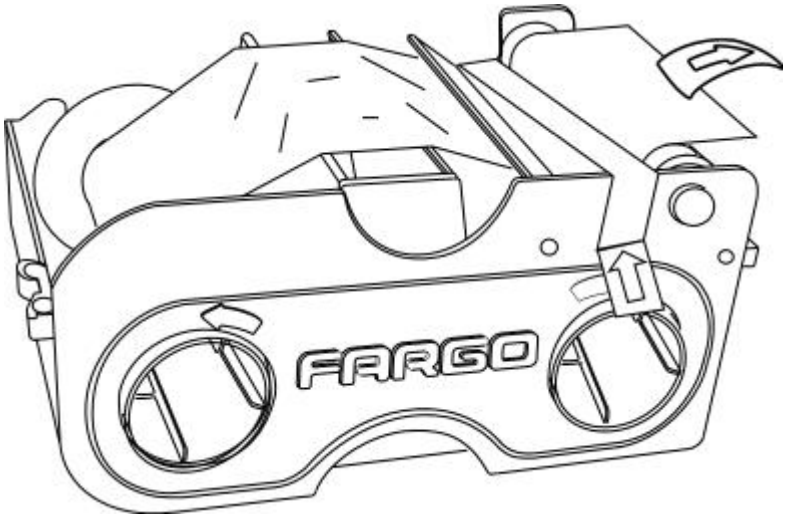
| Step | Procedure |
|---|---|
| 1 | To install the Ribbon Cartridge, simply open the front Cover by pressing the black rubber pad or touch pad and lowering the Cover down, as shown below. |



## Installing the Print Ribbon Cartridge (continued)

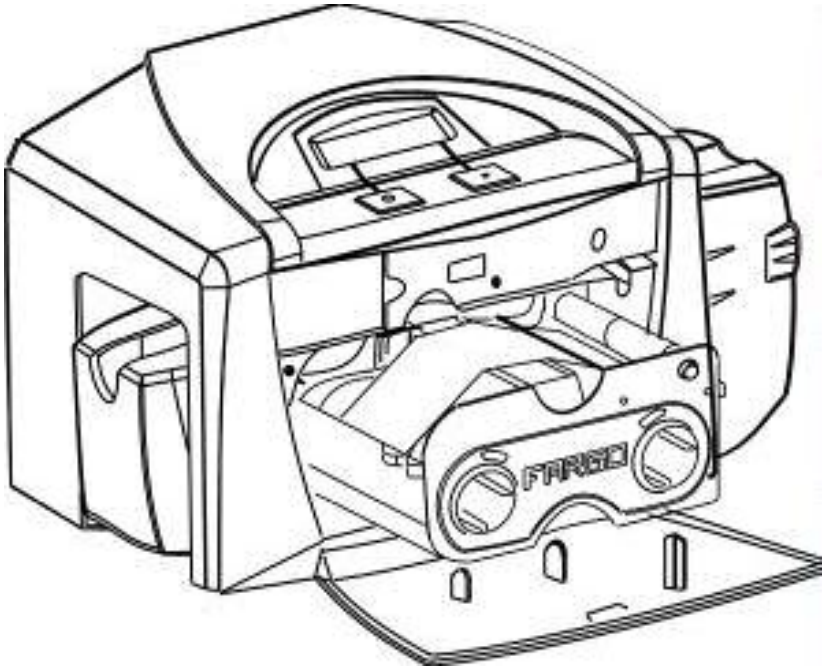
| Step | Procedure |
|---|---|
| 2 | a. Remove the liner on the Card Cleaning Roller before installing the Cartridge, as shown in Display A (upper right arrow of display).<br>b. Remove the Ribbon securing tape, as shown in Display A (middle right arrow of display). |
| 3 | Slide the Ribbon Cartridge into the Printer, as shown in this section. |
| 4 | Raise the front Cover and press the front Cover's black rubber pad or touch pad to secure it. |

Display A – Shows the Print Ribbon Cartridge before it is installed or inserted into the Printer. The Card Cleaning Roller (see arrow) is already inserted into the Print Ribbon Cartridge.



## Installing the Print Ribbon Cartridge (continued)

Display B – Shows direction that Cartridge is inserted in the Printer.



## Installing Blank Cards into the Card Hopper

The Fargo DTC400/DTC300/DTC300M Printer is capable of printing single load cards and multiple feed cards (batch mode).

- To print using single feed, simply remove all cards from the Card Hopper, leave the Card Hopper door closed and place a card in the single Feed Card Slot (which can be used repeatedly).
- Again, the cards should be loaded with the print side down and (if applicable) the magnetic strip up and towards the front of the Printer.

To print using Batch mode follow the instructions below.

| Step | Procedure |
|---|---|
| 1 | Open the Card Hopper Cover. |
| 2 | Press the Card Hopper Load Lever down until the Card Tray locks into place, as shown in Display B in this section. |
| 3 | Load up to 100 cards into the Hopper with the print side down.<br>If using cards with a magnetic strip, the magnetic strip should be loaded with the strip up and to the front of the Printer, as shown in Display C in this section. |
| 4 | Close the Card Hopper Cover to release the Card Tray. |

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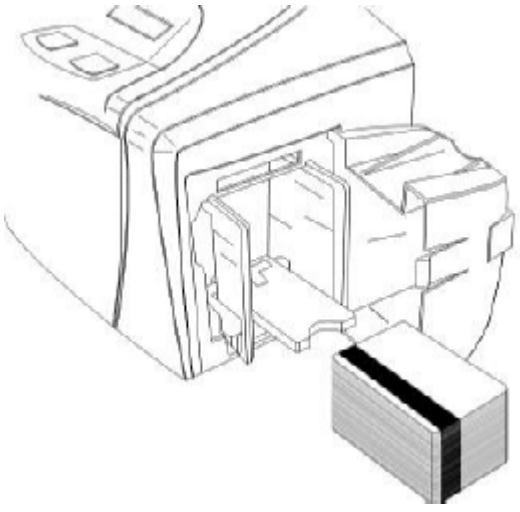
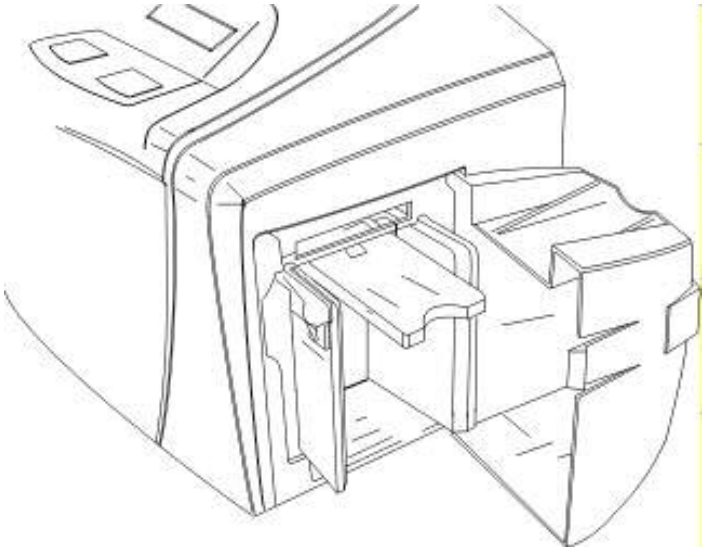
Display A – This is a graphics showing how to insert the cards.



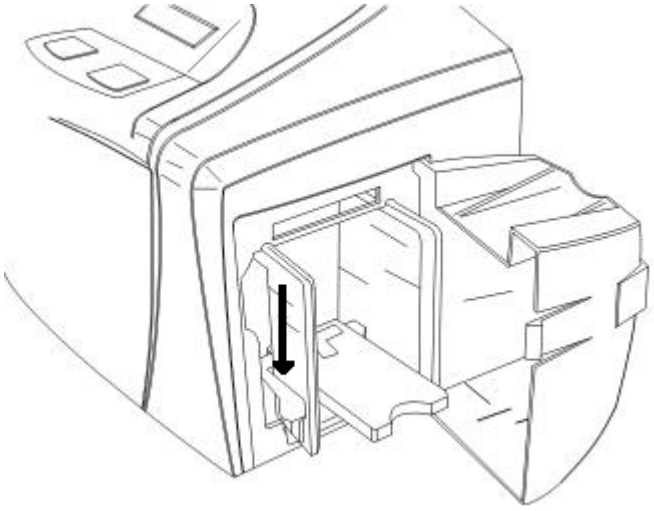
## Installing Blank Cards into the Card Hopper (continued)

Display B - Press the Card Hopper Load Lever down. Insert the cards.

Here the Lever is still up.



Here the Lever is pressed down.



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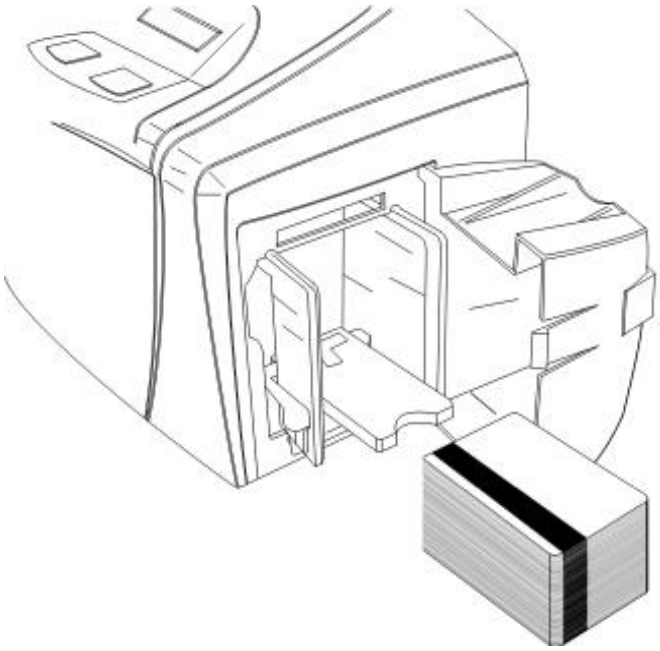
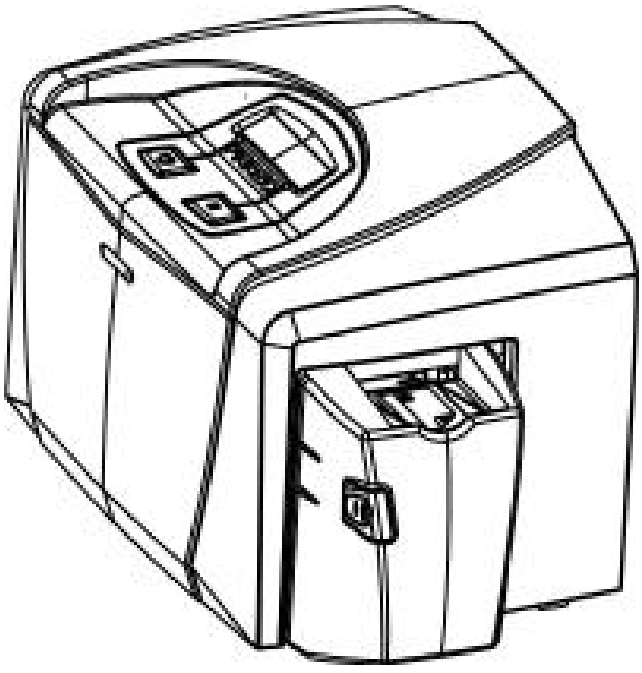
## Installing Blank Cards into the Card Hopper (continued)

Here are the cards ready to insert.



Here the Input Hopper Door is closed.



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## Lowering the Card Output Hopper

| Step | Procedure |
|---|---|
| 1 | The Fargo DTC400/DTC300/DTC300M comes with a Card Output Hopper (to hold cards after they have been printed).<br>Pull on the Output Hopper and lower its Cover down until it snaps into place. |

# Printer Driver Installation

## Installing the Printer Driver

| Step | Procedure |
|---|---|
| 1 | Close all programs and insert the Software Installation CD into your computer's CD drive. After a few seconds, the CD's installer program will automatically open.<br>Follow the CD's on-screen Procedures to complete installation.<br>(**Note:** If the CD does not automatically open, use "My Computer" or "Windows Explorer" to view the contents of the CD. Then, double-click on the Setup.exe file listed on the CD.) |
| 2 | Click on the following buttons to install the appropriate Printer Driver and Online User's Guide, as shown below:<br>• **DTC400 Card Printer/Encoder** button<br>• **DTC300 Card Printer/Encoder** button<br>• **DTC300M Card Printer/Encoder** button |

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## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 3 | Wait during the installation. |

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## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 4 | Click on the **Next** button to continue with the Setup program. |

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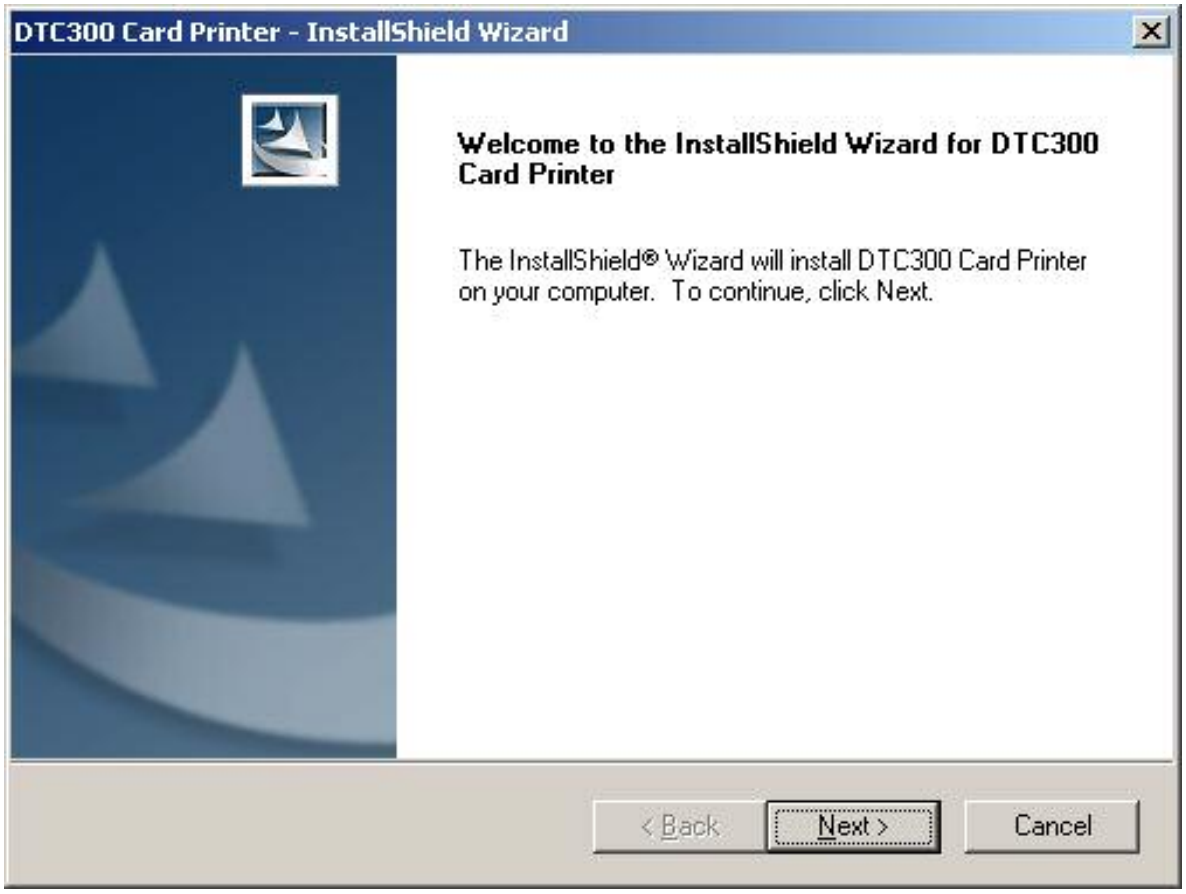

## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 5 | Read the License Agreement. Select the **I accept the terms of the license agreement** option and click **Next** to continue. |

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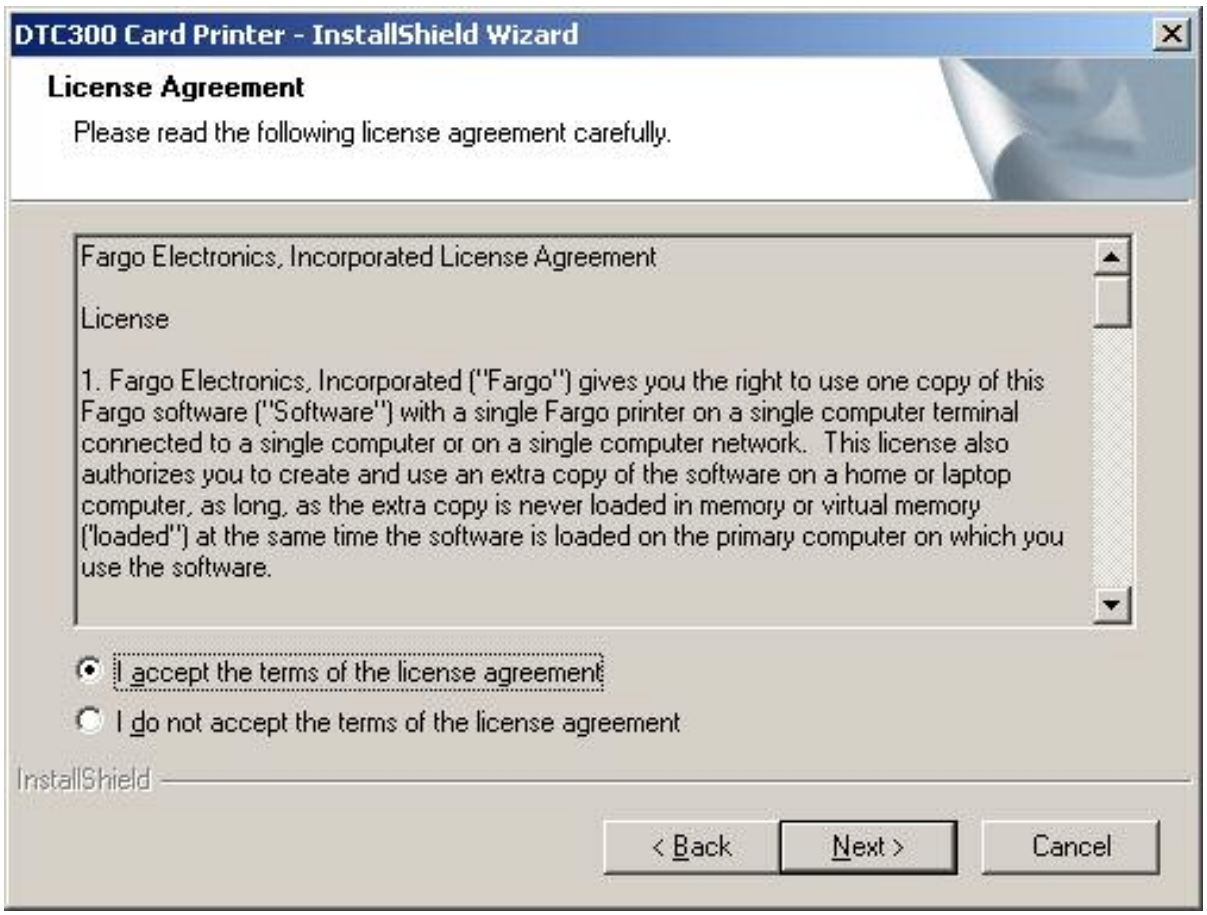

## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 6 | a. Select the **Complete** option to install the following components:<br>• Printer Driver Software<br>• Printer Driver User's Guide<br>• Fargo Diagnostics Utility<br>(**Note**: Selecting **Custom** will provide the option to select which components to install.)<br>b. Click **Next** to continue. |

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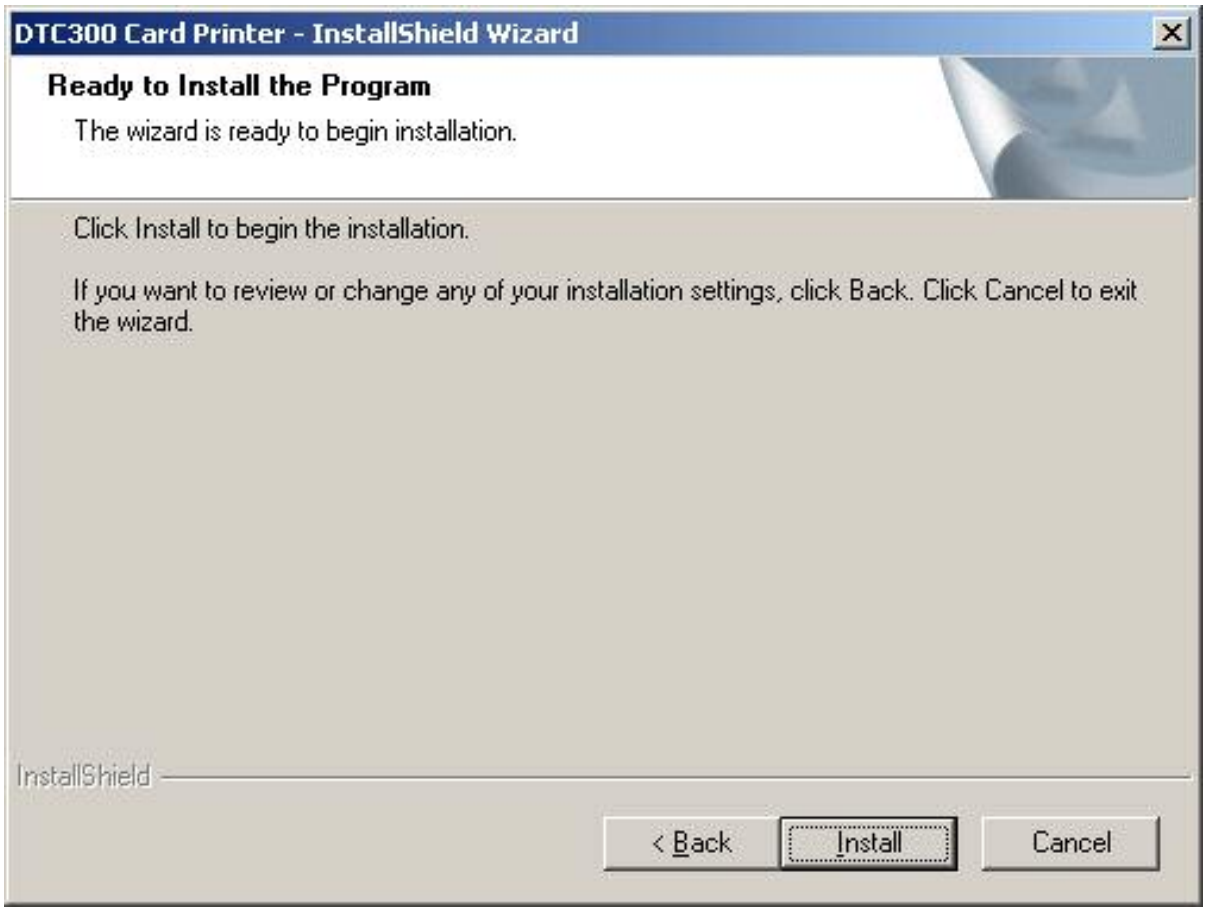
## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 7 | Click **Install** to begin the installation. |

*Continued on the next page*



## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 8 | Select the port that your Printer is connected to at this time. Click on the **OK** button and continue with the installation. |

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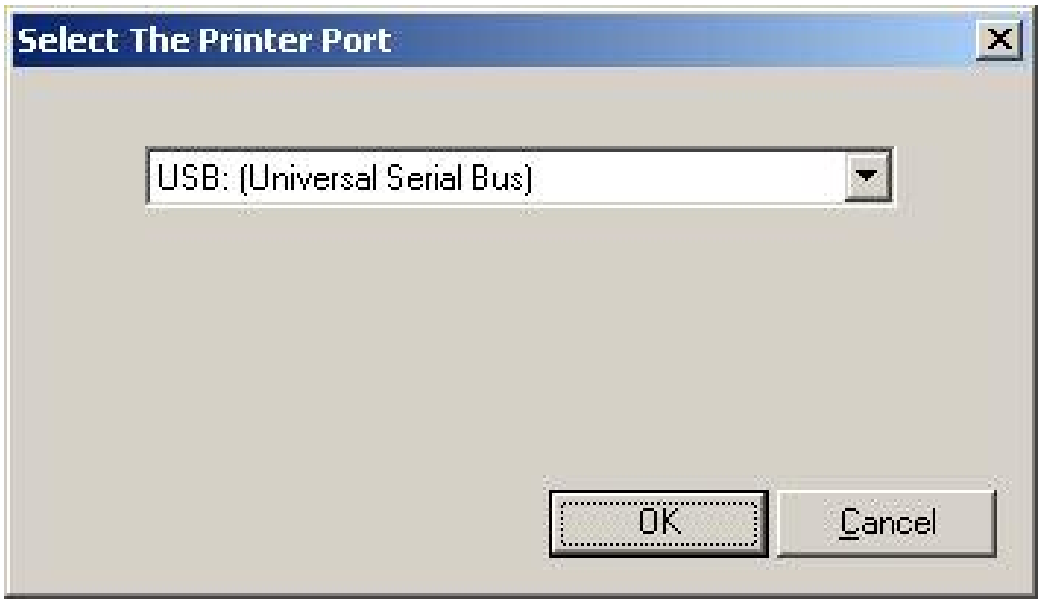

## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 9 | a. Connect the USB cable to the Printer.<br>b. Turn ON the Printer at this time if it is not already ON. |

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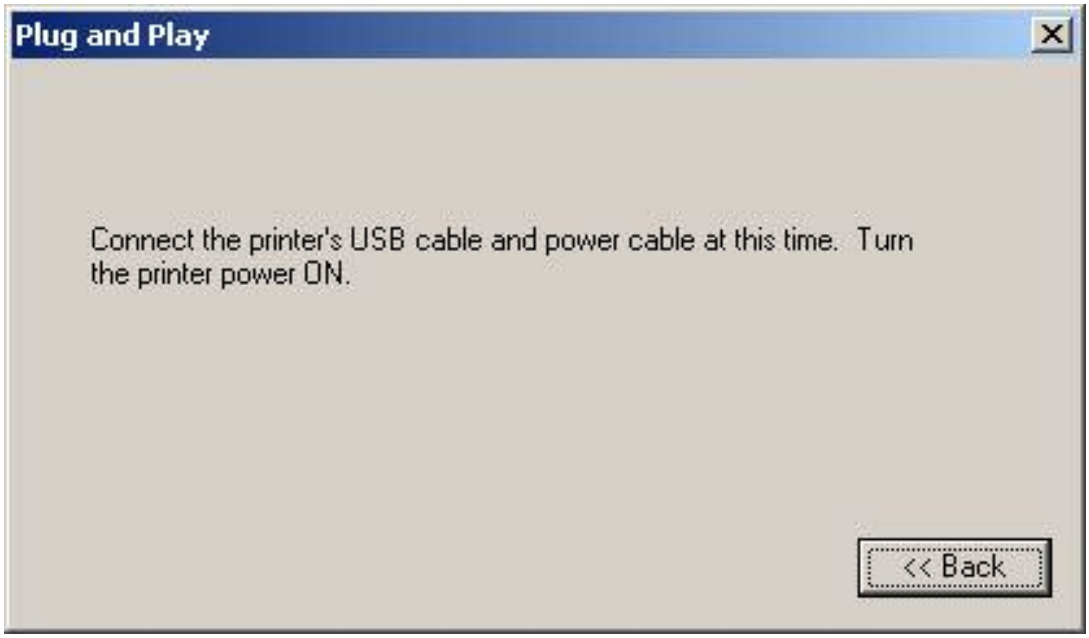

## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 10 | Wait while the Driver components are being copied to your PC. |

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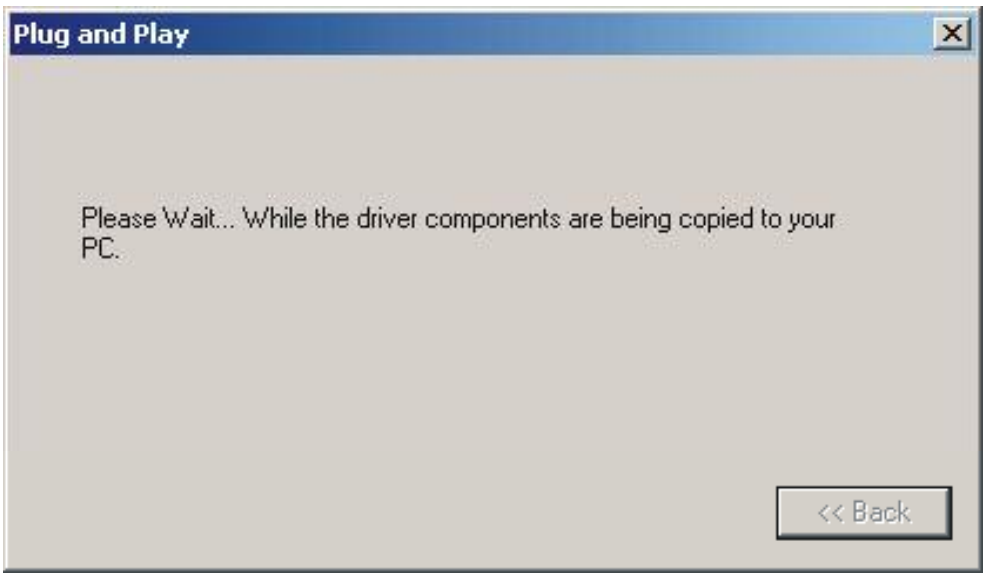

## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 11 | Click on the **Finish** button to complete the Setup, as shown below. |

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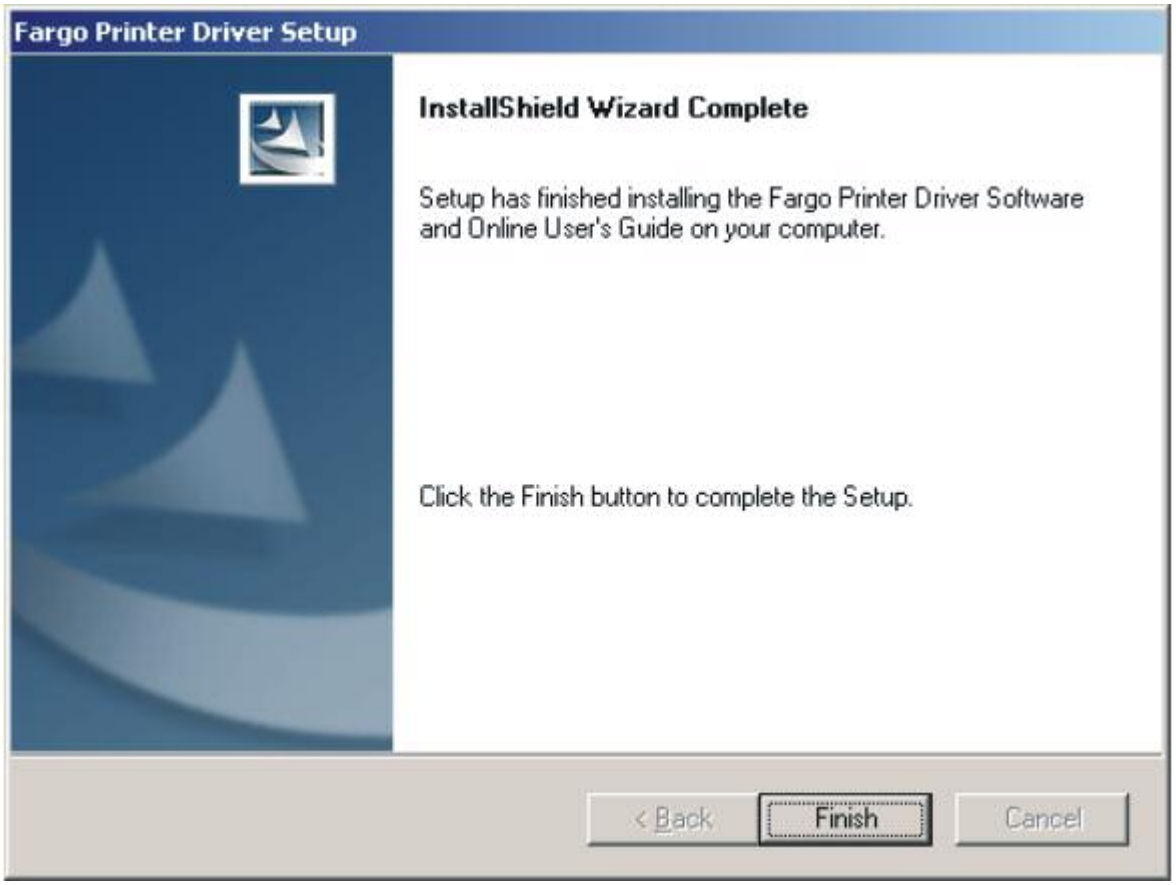


## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 12 | a. Click on the **Yes** button to exit the installer, as shown below.<br>b. Click on the **No** button to return to the installer's main menu to install additional software components. |

*Continued on the next page*

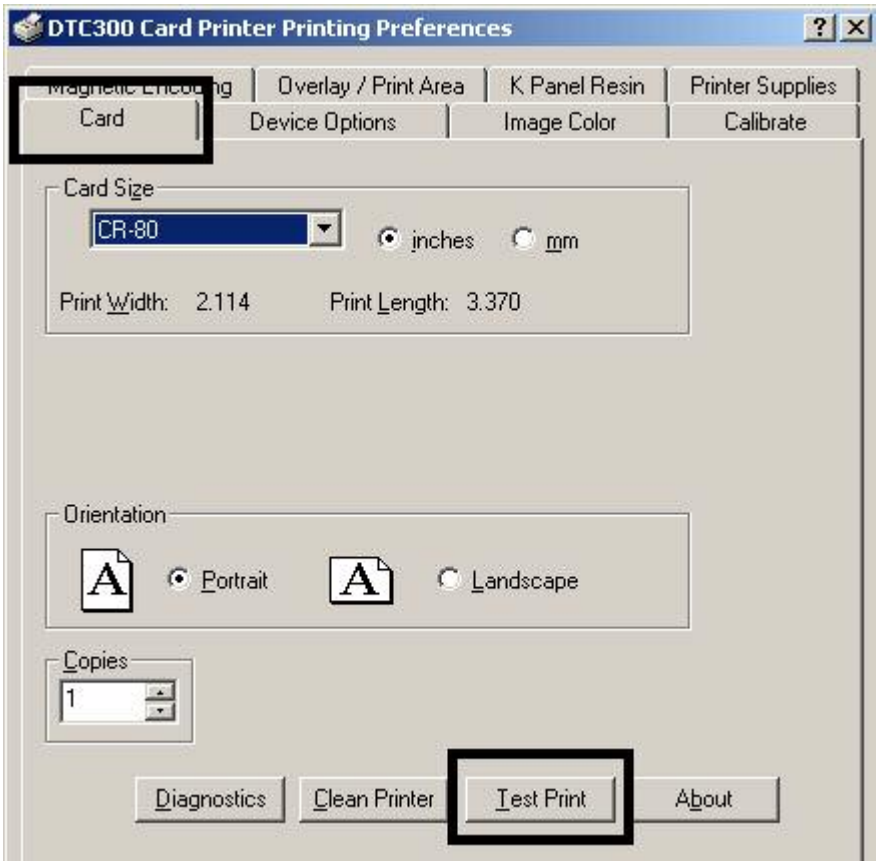
## Installing the Printer Driver (continued)

| Step | Procedure |
|---|---|
| 13 | **You have completed the installation.** |

## Printing a Test Print Image

| Step | Procedure |
|---|---|
| 1 | a. From your computer's startup menu, select Settings > Printers and Faxes (Windows XP) or > Printers (Windows 98SE, Me and 2000).<br>b. Double click on the DTC400/DTC300/DTC300M Card Printer under the Printers window.<br>c. Select Printing Preferences under the Printer drop-down menu. This will bring up the DTC400/DTC300/DTC300M Printing Preferences window. |
| 2 | a. Select the Card tab, and then click on the **Test Print** button, as shown in Display A in this section. (**Note: Ensure that a full color YMCKO Ribbon is installed before proceding.)**<br>b. When the **Test Print** button is selected, an image is copied to the Printer. |

Display A - DTC400/DTC300/DTC300M Printer Driver Card Tab:

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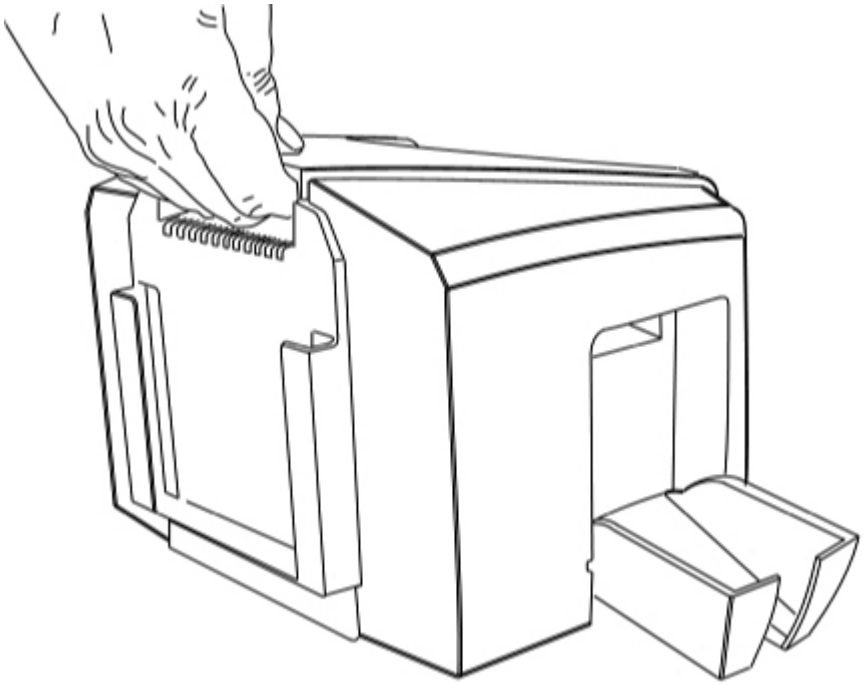
## Printing a Test Print Image (continued)

| Step | Procedure |
|---|---|
| 3 | This completes the DTC400/DTC300/DTC300M Card Printer/Encoder Installation Guide.<br>For additional help regarding the Test Print and other related items please see the DTC400/DTC300/DTC300M Card Printer User Guide located under Start > Programs > Fargo. |

# Printer Transport

## Moving the Printer to another location

| Step | Procedure |
|---|---|
| 1 | The Printer can be transported by gripping it under the back lid, as shown in the photo below. |
| **2** | **You have completed the setup and installation procedures in this section.** |



# Section 4: General Troubleshooting

This section provides Troubleshooting procedures for this Printer for Communication Errors, Card Feed Errors, Print Process Errors, Card Jam Errors, Encoding Errors and Diagnosing Image Problems.

## Table of Contents

# Safety Messages (review carefully)

| Symbol | Critical Instructions for Safety purposes |
|---|---|
| **Danger:**  | **Failure to follow these installation guidelines can result in death or serious injury.**<br>Information that raises potential safety issues is indicated by a warning symbol (as shown to the below).<br>• **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol.<br>• **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified.<br>• **To prevent personal injury**, make sure only qualified personnel perform these procedures. |
| **Caution:**  | **This device is electrostatically sensitive. It may be damaged if exposed to static electricity discharges.**<br>Information that raises potential electrostatic safety issues is indicated by a warning symbol (as shown to the below).<br>• **To prevent equipment or media damage**, refer to the following safety messages before performing an operation preceded by this symbol.<br>• **To prevent equipment or media damage**, observe all established Electrostatic Discharge (ESD) procedures while handling cables in or near the Circuit Board and Printhead Assemblies.<br>• **To prevent equipment or media damage**, always wear an appropriate personal grounding device (e.g., a high quality wrist strap grounded to avoid potential damage).<br>• **To prevent equipment or media damage**, always remove the Ribbon and Cards from the Printer before making any repairs, unless otherwise specified.<br>• **To prevent equipment or media damage**, take jewelry off of fingers and hands, as well as thoroughly clean hands to remove oil and debris before working on the Printer. |

# Communications Errors

## Resolving the Communication Errors

**Symptom(s):** Incorrect output, communications error on PC or Printer, stalling, no response from Printer, no job printed, “paper out” error.

| Step | Procedure |
|---|---|
| 1 | Confirm that the system meets the minimum requirements, as shown here:<br>• IBM-PC or compatible.<br>• Windows 98SE, Me/2000/XP Pentium™ class 233 MHz computer with 64 MB of RAM or higher<br>• 200 MB free hard disk space or higher<br>• USB Port |
| 2 | Confirm the correct installation of the Printer Driver.<br>a. Close the software program and check the Printer Driver.<br>b. Reboot the computer.<br>c. Ensure the Printer Driver is installed correctly. (**Note:** Especially if an obsolete Driver was recently removed.)<br>d. Ensure the correct setup options within the Printer Driver are selected.<br>e. Confirm that the Driver is current by checking at: www.fargo.com |
| 3 | Determine the problem with printing from the application.<br>a. Print a self-test from the Printer by holding down the **Pause** button on power up to ensure that the Printer (itself) is functioning properly.<br>b. Print the Windows test page that is located in the General tab of the Driver.<br>c. Use **WordPad** (a Windows 98SE, Me/2000/XP word processing program in the Accessories Program Group).<br>1) Go to the **File** menu and select **Page Setup**.<br>2) Click on the **Printer** button and select the DTC400/DTC300/DTC300M Card Printer.<br>3) Click **OK** and reset all four margins to zero. (**Note:** The WordPad will automatically replace the values with it’s minimum margins.)<br>4) Open the program and type: “This is a Test.” then, go to **File** on the menu bar and select **Print**. |

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## Resolving the Communication Errors (continued)

| Step | Procedure |
|---|---|
| 4 | Determine whether there is adequate hard Drive space.<br>(**Note:** A large volume of temporary files on the computer can cause communications errors.)<br>a. Access the temporary files by following this process:<br>• Search for all folders called TEMP. Once found, clear out the contents of the folders.<br>• If using Windows 98SE, Me/2000/XP, run the System Utility - Disk Defragmenter found in the Accessories folder of the **Start** Menu.<br>• Use a disk cleanup utility (such as **Disk Cleanup** found in the System Tools folder of the Start menu) or use a third party application. |

# Print Process Errors

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

## Resolving a Card Not Fed Error (Cards will not feed off the Hopper)

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Cards will not feed at all.<br>• **Printer Error State:** Card is not being detected by the Card TOF Sensor 11 seconds after the initiation of a print job causing the Printer to produce an error<br>• **LCD Error Display:** Card Not Fed<br>• **Driver Monitor Error Display:** Unable to Feed Card |

*Continued on the next page*

## Resolving a Card Not Fed Error (Cards will not feed off the Hopper) (continued)

| Step | Procedure |
|---|---|
| 2 | Check the card quality / loading.<br>a. Remove cards from the Card Hopper.<br>b. Ensure that the cards are not sticking together by fanning them out and then lining them back together in straight deck.<br>c. Press the Card Hopper Load Lever down until the Card Tray locks into place.<br>d. Load up to 100 cards into the Hopper with the print side down.<br>e. Close the Card Hopper Cover to release the Card Tray.<br>f. Press on the Resume button.<br>g. If the cards do not feed, continue to Step 3. |
| 3 | Press the **Cancel Print** button on the Driver Monitor Error Display Message. |
| 4 | Reboot the Printer by cycling the power. |
| 5 | Check the Card Feed Motor.<br>a. Remove all cards from the Hopper.<br>b. Press the Card Hopper Load Lever down until the Card Tray locks into place.<br>c. Using the Fargo Diagnostic utility send a test print to the Printer. See the Using the Diagnostic Utility tabs.<br>d. Gently touch the Card Hopper Feed Roller to verify that it is turning<br>e. If Roller is NOT turning, continue to Step 7.<br>f. If Roller is turning, continue to Step 6. |

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## Resolving a Card Not Fed Error (Cards will not feed off the Hopper) (continued)

| Step | Procedure |
|---|---|
| 6 | Check Hopper Tray Spring Tension.<br>a. Open Card Hopper Cover.<br>b. Using the Fargo Diagnostic utility, send a test print to the Printer. See the Using the Diagnostic Utility tabs.<br>c. When the Card Hopper Feed Roller engages, push up on the Card Hopper Tray.<br>g. If the cards feed, replace the Card Hopper Lift Spring.<br>d. If the cards do not feed, replace the Card Hopper Feed Roller. |
| 7 | Card Hopper Feed Roller is not turning during a print job.<br>a. Remove the Printer rear cover.<br>b. Ensure that the Card Hopper Feed Motor power cable is securely connected to J-20 on the Printers Main Board.<br>c. Ensure that the Card Hopper Feed Motor power cable is securely connected to the Card Hopper Feed Motor.<br>d. Use the Fargo Diagnostic utility to send a test print to the Printer. See the Using the Diagnostic Utility tabs.<br>e. If the Card Hopper Feed Motor is not moving, continue to Step 8. |
| 8 | Replace Card Hopper Feed Motor.<br>a. Replace the Card Hopper Feed Motor.<br>b. Use the Fargo Diagnostic utility to send a test print to the Printer. See the Using the Diagnostic Utility tabs.<br>c. If the Card Hopper Feed Motor does not turn, replace the Main Board. |

## Resolving a Card Not Fed Error (Two (2) or more card feed at the same time)

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptoms:** Two or more cards feed at the same time causing the cards to jam at the Card Hopper Roller. Printer is out of cards.<br>• **Printer Error State:** Card is not being detected by card TOF Sensor 11 sec after the initiation of a print job causing the Printer to produce an error<br>• **LCD Error Display:** Card Not Fed<br>• **Driver Monitor Error Display:** Unable to Feed Card |

*Continued on the next page*

## Resolving a Card Not Fed Error (Two (2) or more card feed at the same time) (continued)

| Step | Procedure |
|---|---|
| 2 | Check card quality / loading.<br>a. Remove cards from the Card Hopper.<br>b. Ensure that the cards are not sticking together by fanning them out and then lining them back together in straight deck.<br>c. Press the Card Hopper Load Lever down until the Card Tray locks into place.<br>d. Load up to 100 cards into the Hopper with the print side down.<br>e. Close the Card Hopper Cover to release the Card Tray.<br>f. Press on the Resume button.<br>g. If the cards do not feed, continue to Step 3. |
| 3 | Press the **Cancel Print** button on the Driver Monitor Error Display Message. |
| 4 | Reboot the Printer by cycling the power. |
| 5 | Check Card Feed TOF Sensor.<br>a. Remove the Printers rear cover.<br>b. Use a digital volt meter to place the Positive lead to pin 9 of the J-4 Main Board connection and the negative lead to pin 12 of the J-4 Main Board connection.<br>• The blocked Sensor should read +4.99 vdc.<br>• The open Sensor should read +1.5 vdc.<br>c. If the Card Feed TOF Sensor does not read properly, replace the Sensor. |
| 6 | Clean the Card Feed Roller. |

## Resolving a Ribbon RFID Error (Ribbon RFID Antenna is Corrupted)

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Printer RFID Sensor does not detect a recognizable signal from the Ribbon.<br>• **Printer Error State:** The Ribbon tag information is corrupted or incorrect.<br>• **LCD Error Display:** Ribbon RFID Error<br>• **Driver Monitor Error Display:** Ribbon RFID Error |

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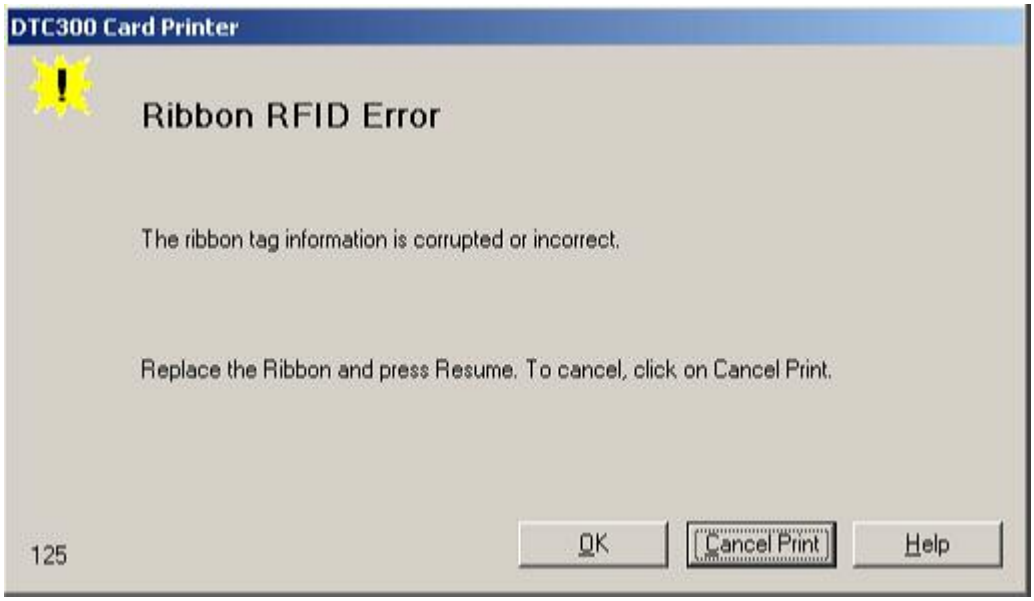

## Resolving a Ribbon RFID Error (Ribbon RFID Antenna is Corrupted) (continued)

| Step | Procedure |
|---|---|
| 2 | Replace the Print Ribbon<br>a. Replace the Print Ribbon Cartridge.<br>b. Press on the Resume button.<br>c. If the error continues, see Resolving the Ribbon RFID Error (Ribbon RFID Sensor is Corrupted) in this section. |

## Resolving a Ribbon RFID Error (Ribbon RFID Sensor is Corrupted)

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Printer RFID Sensor does not detect a recognizable signal from the Ribbon.<br>• **Printer Error State:** The Ribbon tag information is corrupted or incorrect.<br>• **LCD Error Display:** Ribbon RFID Error<br>• **Driver Monitor Error Display:** Ribbon RFID Error |
| 2 | Replace the Print Ribbon RFID Sensor.<br>a. Replace the Print Ribbon RFID Sensor.<br>b. Press on the Resume button.<br>c. If the error continues, replace the Printer Main Board. |

## Resolving the Mag Verify Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** The Printer is unable to verify encoded data.<br>• **Printer Error State:** The Printer is unable to verify encoded data.<br>• **LCD Error Display**: Mag Verify<br>• **Driver Monitor Error Display**: Mag Verify |

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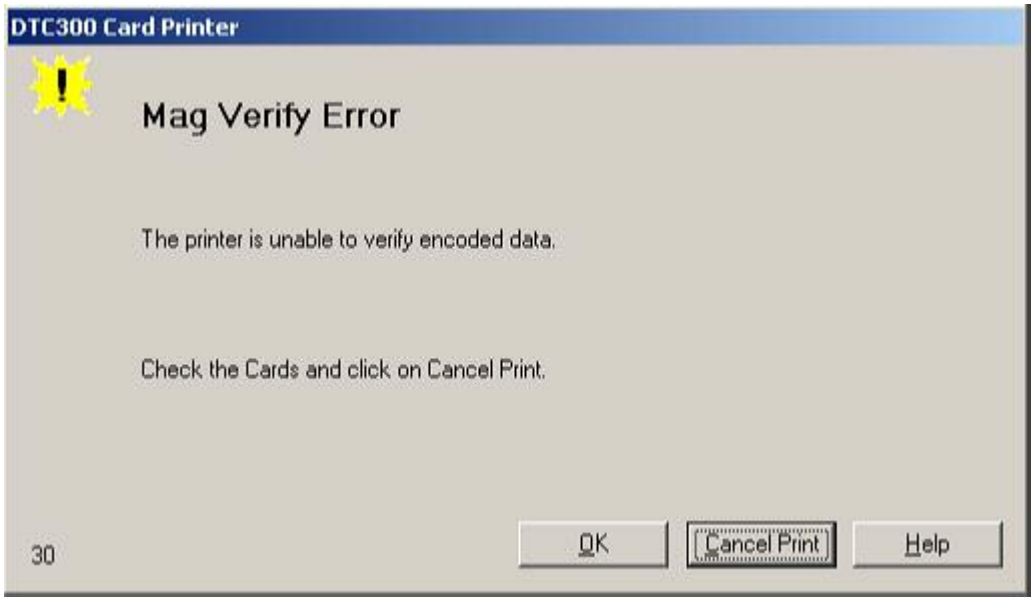

## Resolving a Mag Verify Error (continued)

| Step | Procedure |
|---|---|
| 2 | Check to ensure that the cards are loaded with the Magnetic Stripe facing Up and towards the front of the Printer. |
| 3 | a. Press on the Resume button.<br>b. If the error continues continue to step 4 |
| 4 | Verify the Driver settings if cards are loaded properly. See the Using the Magnetic Encoding tab procedure in . |
| 5 | Verify that data is being encoded to the Magnetic Stripe.<br>a. Clear any Error Messages from the LCD by unplugging the Printer and reapplying power.<br>b. Remove the failed card.<br>c. Use a Magnetic Stripe reader or magnetic developer spray to determine if data is being written to the Magnetic Stripe.<br>d. If data is not being written to the Magnetic Stripe,<br>• Open the front cover.<br>• Remove the Magnetic Module cover screw.<br>• Remove the Magnetic Module cover.<br>• Verify that the Magnetic Module is seated securely into the Magnetic Module docking station.<br>e. If the Magnetic module is properly seated, replace the magnetic head (as needed). (**Note:** See the current DTC400/DTC300/DTC300M User Guide for related instructions in the Parts Replacement Section.)<br>f. If data is being written to the Magnetic Stripe, the Magnetic Offset may need to be adjusted. See the Using the Mag Top of Form Option. |

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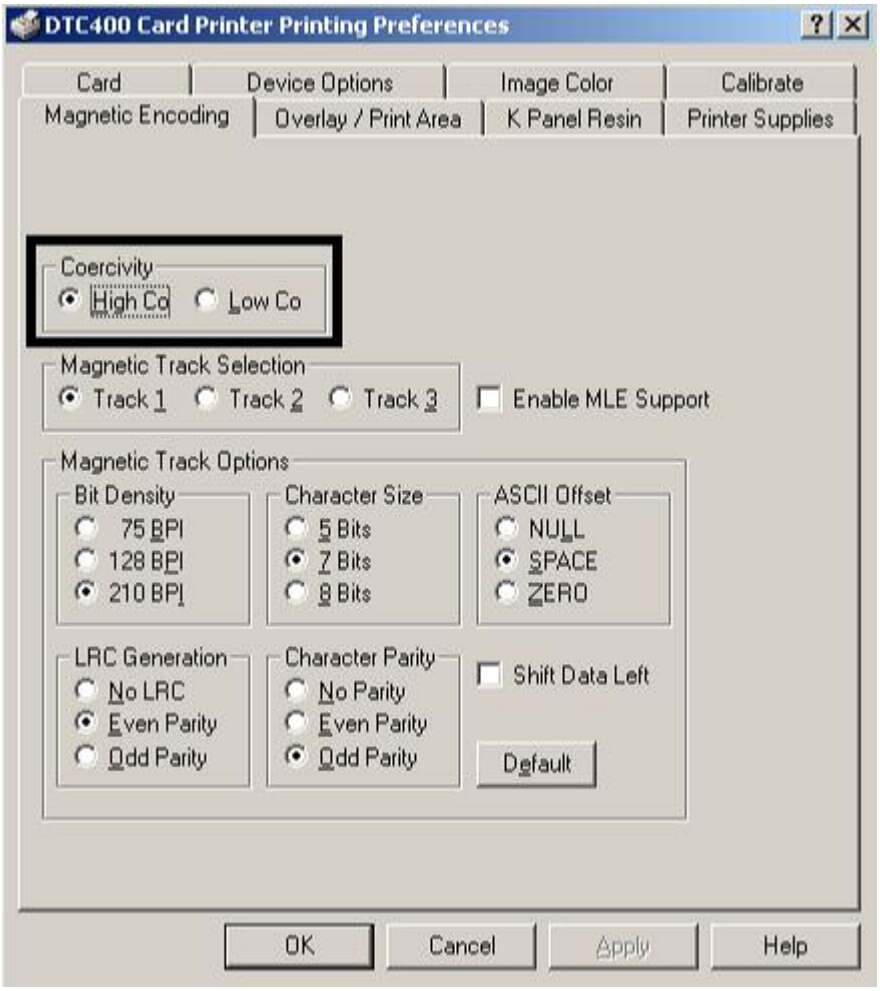
## Resolving a Mag Verify Error (continued)

| Step | Procedure |
|---|---|
| 6 | Verify that the coercivity of the cards matches the Driver Settings. |



## Resolving the No Mag Installed Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** There is not Magnetic Encoder installed.<br>• **Printer Error State:** A print job with Magnetic encoding was sent with no Magnetic encoder installed in the Printer.<br>• **LCD Error Display:** No Mag Installed<br>• **Driver Monitor Error Display:** No Mag Installed |

*Continued on the next page*

## Resolving a No Mag Installed Error (continued)

| Step | Procedure |
|---|---|
| 2 | Press the **Cancel Print** button on the Driver Monitor Error Display Message. |
| 3 | Reboot the Printer by cycling the power. |
| 4 | Verify that the Printer has a Magnetic Encoder installed.<br>a. Open the front cover.<br>b. Remove the Magnetic Module cover screw.<br>c. Remove the Magnetic Module cover.<br>d. Verify that the Printer has a Magnetic Module installed. (**Note:** If the Printer is equipped with a Magnetic Encoder Module, ensure that it is seated securely into the Magnetic Module docking station. If the issue persists, replace the Magnetic Module. See the DTC400/DTC300/DTC300M User Guide for replacement procedures.) |
| 5 | If the Printer has no Magnetic Encoder module, verify that the encoding data was sent in error, check the appropriate software user's manual for encoding instructions. |

## Resolving a Ribbon Sensor Error (Ribbon Miscue)

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** The Printer rolls through Ribbon and errors out<br>• **Printer Error State**: The Printer cannot find the next panel on the Ribbon.<br>• **LCD Error Display:** Ribbon Miscue<br>• **Driver Monitor Error Display**: Ribbon Sensor |

*Continued on the next page*

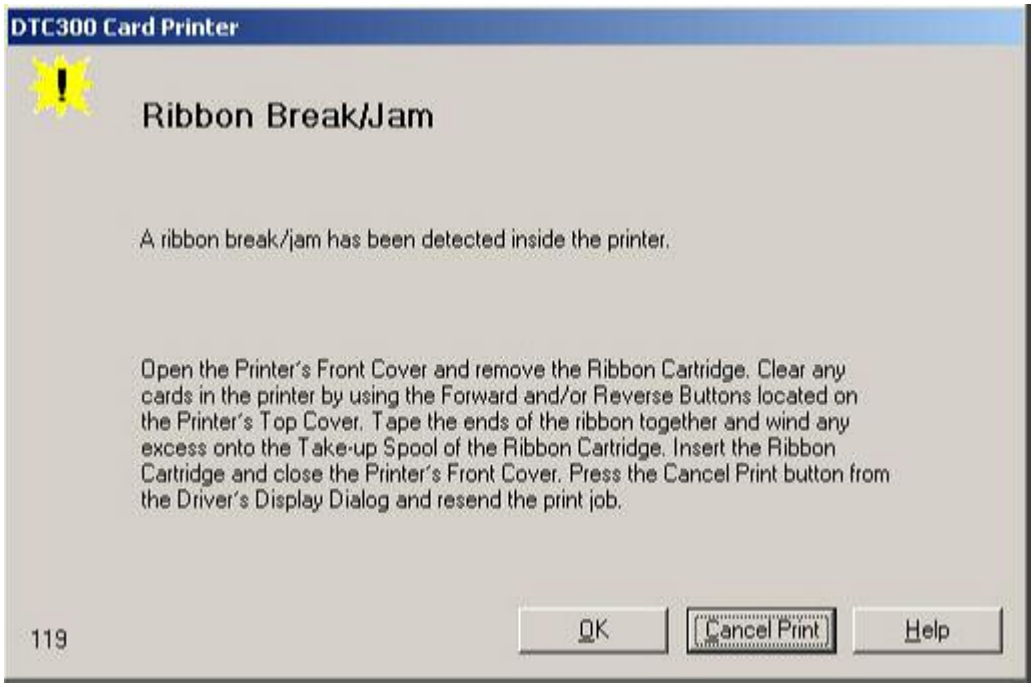
## Resolving a Ribbon Sensor Error (Ribbon Miscue) (continued)

| Step | Procedure |
|---|---|
| 2 | Open the front cover and remove the Ribbon Cartridge.<br>a. Check that the Ribbon is in good condition and not wrinkled or broken.<br>a. If Ribbon is broke or wrinkled, repair the Ribbon and wind up the take-up roll 4-color panels past the damaged area. |
| 3 | Press on the Resume button.<br>If the issue persists, continue to Step 4. |
| 4 | Replace the Ribbon Cartridge.<br>a. Press on the Resume button.<br>b. If the issue persists, continue to Step 5. |
| 5 | Press the **Cancel Print** button on the Driver Monitor Error Display Message. |
| 6 | Reboot the Printer by cycling the power. |
| 7 | Using the driver calibration tab calibrate the Ribbon Sensor.<br>If the issue persists, continue to Step 8. |
| 8 | Replace the Ribbon Sensor. |

## Resolving a Ribbon Break Jam Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** The Print Ribbon has become jammed or has broken in the Printer<br>• **Printer Error State:** The Ribbon Supply Encoder Sensor has unexpectedly stop receiving information from the Ribbon Encoder<br>• **LCD Error Display:** Ribbon BreakJam<br>• **Driver Monitor Error Display:** Ribbon BreakJam |



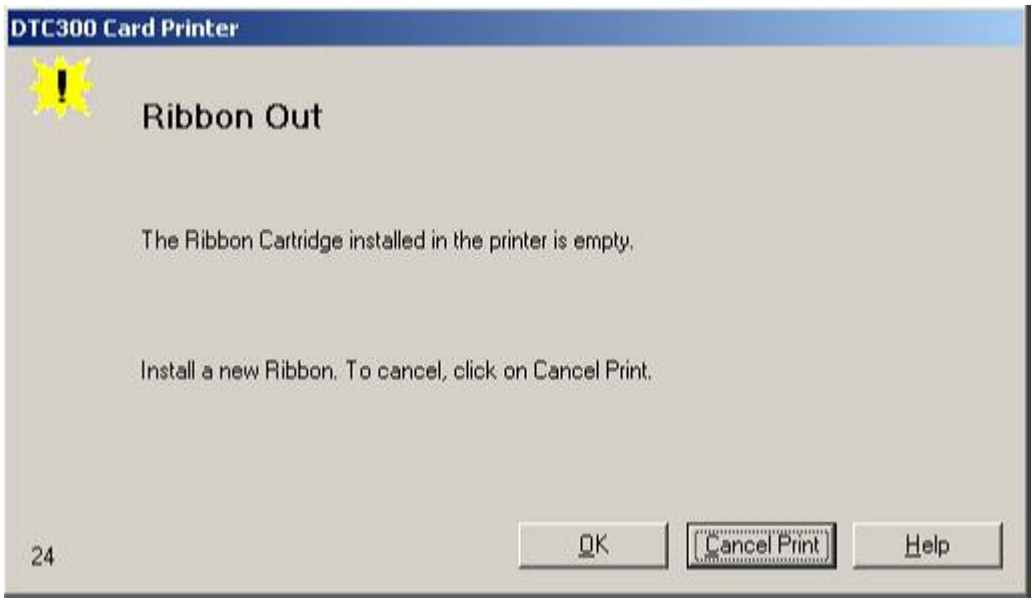
## Resolving a Ribbon Break Jam Error (continued)

| Step | Procedure |
|---|---|
| 2 | Open the front cover and remove the Ribbon Cartridge.<br>• If Ribbon is broken, continue to Step 3.<br>• If Ribbon is in good condition, continue to Step 6. |
| 3 | Adjust the print offset (See Using the Print Top of Form Option)<br>If the issue persists, continue to Step 4. |
| 4 | Repair the Ribbon and wind up the take-up roll 4 color panels past the damage area.<br>a. Press on the Resume button.<br>If the issue persists, continue to Step 5. |
| 5 | Use the Fargo Diagnostic utility to cycle the Printhead to ensure proper printhead operation. See the Using the Diagnostic Utility tabs.<br>• If the Printhead does not cycle properly, see Resolving the Headlift Motor / Sensor Error.<br>If the Printhead functions properly, continue to Step 6. |
| 6 | Replace the Ribbon Cartridge.<br>a. Press on the Resume button.<br>If the issue persists, continue to Step 7. |
| 7 | Remove the rear cover in order to check that the Ribbon Encoder Sensor is securely connected to the J-4 Main Board connection and to the Encoder Sensor.<br>a. Press on the Resume button.<br>If the issue persists, replace the Encoder Sensor. |

## Resolving a Ribbon Out Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Printer will not print.<br>• **Printer Error State:** The Ribbon Sensor has detected the End Of Ribbon mark<br>• **LCD Error Display**: Ribbon Out<br>• **Driver Monitor Error Display:** Ribbon Out |
| 2 | Replace the Ribbon Cartridge<br>a. Press on the Resume button. |



## Resolving a No Ribbon Installed Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Printer errors out as soon as it receives data from PC<br>• **Printer Error State:** The Printer RFID Sensor is not receiving a signal from the Ribbon<br>• **LCD Error Display:** No Ribbon<br>• **Driver Monitor Error Display:** No Ribbon Installed |

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## Resolving a No Ribbon Installed Error (continued)

| Step | Procedure |
|---|---|
| 2 | Verify that a Ribbon Cartridge is installed in the Printer.<br>a. Press on the Resume button.<br>If the issue persist, continue to Step 3. |
| 3 | Remove the rear cover and check that the Ribbon RFID cable is securely connected to the Main Board (J-5) and the RFID Sensor.<br>• If the connections are loose, reattach<br>• . Press on the Resume button.<br>• If the connections are good or if the issue persists, continue to Step 4. |
| 4 | Replace the Ribbon RFID Sensor. |

## Resolving a Invalid Ribbon Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Printer errors out as soon as it receives data from the PC<br>• **Printer Error State:** The Ribbon installed does not match the Printer model.<br>• **LCD Error Display**: Invalid Ribbon<br>• **Driver Monitor Error Display**: Invalid Ribbon |

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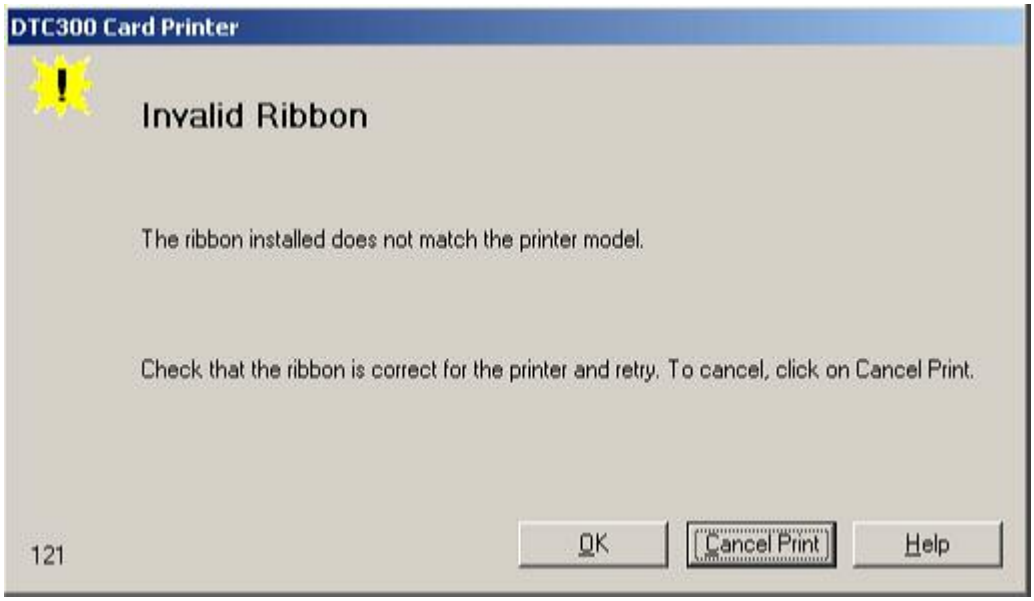

## Resolving a Invalid Ribbon Error (continued)

| Step | Procedure |
|---|---|
| 2 | Verify that the Ribbon Cartridge installed is designed for the correct Printer model. |
| 3 | Press on the Resume button.<br>If the issue persists, continue to Step 4. |
| 4 | Remove the rear cover and check that the Ribbon RFID cable is securely connected to the Main Board (J-5) and the RFID Sensor.<br>• If the connections are loose, reattach<br>• Press on the Resume button..<br>• If the connections are good or if the issue persists, continue to Step 5. |
| 5 | Replace the Ribbon RFID Sensor. |

## Resolving a Wrong Ribbon Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Printer errors out as soon as it receives data from the PC<br>• **Printer Error State:** The Ribbon installed does not match the Printer Driver information<br>• **LCD Error Display:** Wrong Ribbon<br>• **Driver Monitor Error Display:** Wrong Ribbon |

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## Resolving a Wrong Ribbon Error (continued)

| Step | Procedure |
|---|---|
| 2 | Verify the Driver settings are correct.<br>a. Open the Printer Control Panel from the Computer.<br>• If using Windows 98SE, Me, right click on the DTC400/DTC300 Card Printer Icon and select **Properties**.<br>• If using Windows 2000/XP, right click on the DTC400/DTC300 Card Printer and select **Printing Preferences**.<br>b. Click on the Device Option tab.<br>c. Click on the **auto select** button.<br>d. Check that the Ribbon type matches the Ribbon selected. |
| 3 | Press on the Resume button..<br>If the issue persists, continue to Step 4. |
| 4 | Remove the rear cover and check that the Ribbon RFID cable is securely connected to the Main Board (J-5) and the RFID Sensor.<br>• If the connections are loose, reattach<br>• Press on the Resume button...<br>• If the connections are good or if the issue persists, continue to Step 5. |
| 5 | Replace the Ribbon RFID Sensor. |

## Resolving a Card Jam Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Card is jammed.<br>• **Printer Error State**: Card TOF Sensor is detecting no card motion<br>• **LCD Error Display:** Card Jam<br>• **Driver Monitor Error Display:** Card Jam |

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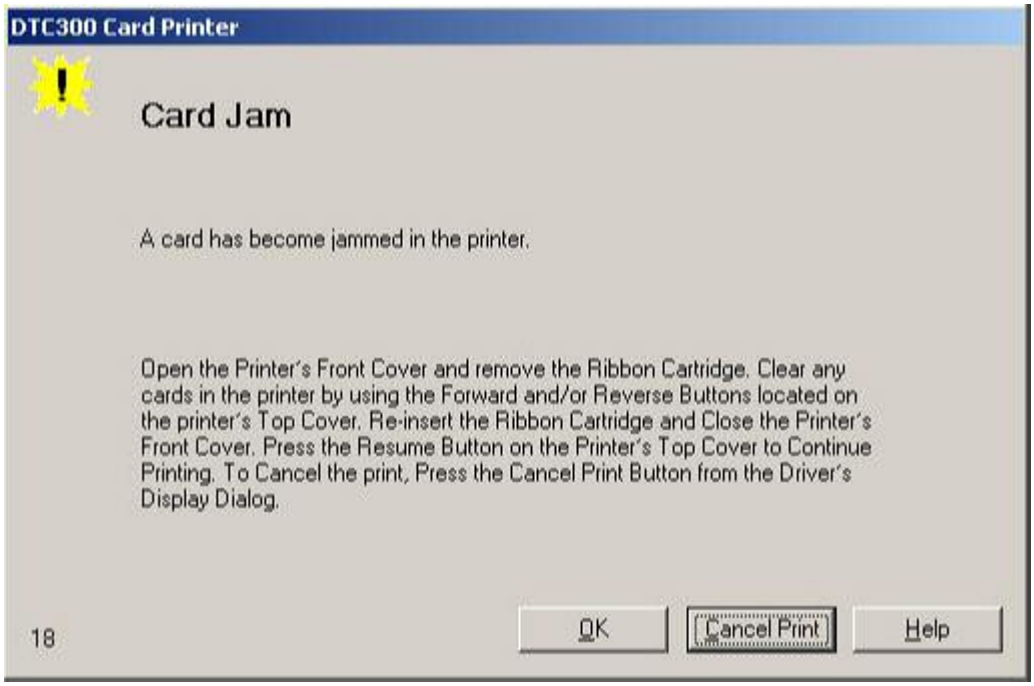

## Resolving a Card Jam Error (continued)

| Step | Procedure |
|---|---|
| 2 | Look for a jammed card in the Printer.<br>a. Open the Printer's front cover.<br>b. Remove the Ribbon Cartridge from the Printer.<br>c. Check to see if a card is jammed in the print station of the Printer.<br>d. If a card is found in the print station, continue to Step 3.<br>e. If no card was found in the print station, continue to Step 4. |
| 3 | Clearing a jammed card.<br>a. If a card is jammed in the Printer, use the **Cancel button** and the **Pause button** to move the Feed Rollers and free the card.<br>b. The card can then be fed out of the Printer. |
| 4 | Test the Card Sensor.<br>a. Remove the rear cover.<br>b. Using a Digital Voltmeter, connect the negative lead to ground.<br>c. Connect the positive lead to Pin 10 of J4.<br>• If **blocked**, the Sensor should read 4.9 to 5.5 VDC.<br>• If **unblocked**, the Sensor should read 0.15 to 0.18 VDC.<br>d. If the voltages do not read correctly, replace the Sensor. (**Note:** See the current DTC400/DTC300/DTC300M User Guide for related instructions in the Parts Replacement Section.) |

## Resolving a Headlift Motor or Sensor Error

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** The Printhead continuously cycles or does not cycle at all<br>• **Printer Error State:** Headlift Sensor is not detecting movement from the Headlift Cam<br>• **LCD Error Display:** Head Lift Error<br>• **Driver Monitor Error Display:** General Error |

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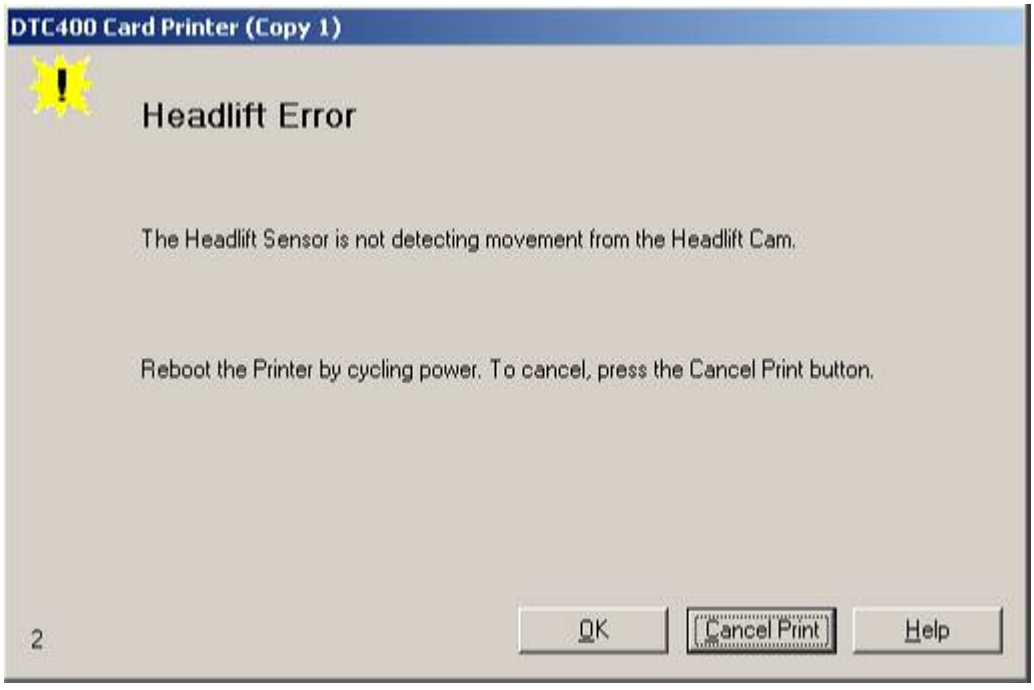

## Resolving a Headlift Motor or Sensor Error (continued)

| Step | Procedure |
|---|---|
| 2 | Press the **Cancel Print** button on the Driver Monitor Error Display Message. |
| 3 | Reboot the Printer by cycling the power. |
| 4 | Cycle the Headlift Motors.<br>a. Use the Fargo Diagnostic utility to cycle the Printhead to ensure proper printhead operation. See the Using the Diagnostic Utility tabs.<br>a. Verify that the Headlift Motor turns.<br>b. If the Motor does not turn or jams, continue to Step 5. |
| 5 | Check the Headlift Motor Main Board Connection (J20).<br>a. Unplug the Printer.<br>b. Remove the back cover.<br>c. Verify that connection J20 is properly connected to the Main Board.<br>d. If the Motor does not turn, continue to Step 7. |
| 6 | Test the Headlift Sensor.<br>a. Remove the back cover.<br>b. Attach the positive lead from a Digital Voltmeter to Pin 1 of J9. Attach the negative lead to the Pin 3 of J9.<br>• If **open**, the Sensor should read 0.17 to 0.9 VDC.<br>• If **closed**, the Sensor should read 4.9 to 5.5 VDC.<br>c. Replace the Sensor if the voltages do not read correctly. (**Note:** See the current DTC400/DTC300/DTC300M User Guide for related instructions in the Parts Replacement Section.)<br>d. If the Motor does turn, continue to Step 7. |
| 7 | Replace the Headlift Motor. (**Note:** See the current DTC400/DTC300/DTC300M User Guide for related instructions in the Parts Replacement Section.)<br>a. If the Motor does turn, continue to Step 8. |
| 8 | Replace the Main Board. |

## Resolving the Cover Open Error Message

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** The Printer errors immediately after sending a print job, or the Rollers do not operate by pressing the cottons on the front panel (when the cover is open).<br>• **Printer Error State:** The front cover Sensor detects that the cover is open<br>• **LCD Error Display:** Cover Open<br>• **Driver Monitor Error Display:** None |
| 2 | Check for debris, as follows:<br>a. Open the front cover and check that no debris has accumulated in the lid Sensor opening. Use compressed air to clean the opening id as needed.<br>b. If the Sensor still does not work, continue to Step 3. |
| 3 | Check that the Sensor tab on the front cover is not damaged.<br>a. Open the front cover and examine the Lid Sensor tab for damage, if the Sensor tab is damaged, replace the front cover. (**Note:** See the current DTC400/DTC300/DTC300M User Guide for related instructions in the Parts Replacement Section.)<br>b. If the Sensor still does not work, continue to Step 4. |
| 4 | Replace the Main Board. (**Note:** See the current DTC400/DTC300/DTC300M User Guide for related instructions in the Parts Replacement Section.) |

## Resolving the Blank Output issues

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** A card is ejected blank (that should be printed).<br>• **Printer Error State:** None<br>• **LCD Error Display:** None<br>• **Driver Monitor Error Display:** None |
| 2 | Run a self-test.<br>a. Clear any card jams.<br>b. Unplug power from the Printer.<br>c. While holding down the **Pause** button, reapply power.<br>(**Note:** A self-test card will be printed.) |
| 3 | Look for an image on the Ribbon.<br>a. After a self-test has been run, open the top cover.<br>b. Remove the Print Ribbon from the Printer.<br>c. Visually inspect the set of panels that were last used by the Printer.<br>d. If an image is noticeable on the used Ribbon, continue to Step 4.<br>e. If an image is not noticeable on the used Ribbon, continue to Step 5. |

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## Resolving the Blank Output issues (continued)

| Step | Procedure |
|---|---|
| 4 | Adjust the placement.<br>a. Reset the Printer to clear any Error Messages by removing the power and reapplying it.<br>b. Open the Printer Control Panel from the Computer.<br>• If using Windows 98SE, Me, right click on the DTC400/DTC300/DTC300M Card Printer Icon and select **Properties**.<br>• If using Windows 2000/XP, right click on the DTC400/DTC300/DTC300M Card Printer and select **Printing Preferences**.<br>c. Click on the Calibrate tab.<br>d. Click on the **Settings** button.<br>e. Adjust the Image Placement Setting by +5.<br>f. Click on the **OK** button.<br>g. Print a self-test.<br>h. After adjusting the Image Placement, if a white border appears on the card, adjust the image placement back toward its original value in increments of 2 until the white edge is gone.<br>i. If still having blank card issues, continue to Step 5. |
| 5 | Check the Printhead connections.<br>a. Remove the Printer power and USB cables.<br>b. Turn the Printer over to gain access to the base plate.<br>c. Remove the one (1) thumbscrew from the Printhead cover plate and remove the cover plate.<br>d. Depress the Printhead locking tabs and remove the Printhead.<br>e. Check to ensure that Power and Data Cables (that connect to the Printhead) are properly seated.<br>f. Remove the Back Cover.<br>g. Ensure that the Printhead Power/Data Cable is properly seated on J16 on the Main board.<br>h. If still having blank card issues, continue to Step 6. |

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## Resolving the Blank Output issues (continued)

| Step | Procedure |
|---|---|
| 6 | Ensure that the proper voltage is being applied to the Printhead.<br>a. Remove the back cover.<br>b. Using a Digital Voltmeter, connect the negative lead to ground.<br>c. Probe Pins 1 to 5 of the Printhead power connection on J16.<br>d. Ensure that a voltage between 22 to 23 VDC is read on each pin.<br>• If less than 22 volts is read on any of the pins, replace the Printhead.<br>• If still having issue with blank cards, replace the Main Board. (See the current DTC400/DTC300/DTC300M User Guide for instructions on replacing the Main Board in the Parts Replacement Section.) |

# Diagnosing Image Problems

## Resolving the Pixel Failure problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** A thin line or scratch travels the entire length of the card (See sample image below).<br>• **Printer Error State:** None<br>• **LCD Error Display:** None<br>• **Driver Monitor Error Display:** None |
| 2 | Check the card stock for scratches. Replace the cards (as needed). |
| 3 | Examine the Printhead for visible damage. |
| 4 | Clean the Printhead. See the Cleaning the Printhead procedure. |
| 5 | Replace the Printhead if the problem persists. See Replacing the Printhead Assembly (D900023). |

## Resolving the Card Surface Debris problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Prints have spots (white or colored voids) and/or dust on them (See sample image below).<br>• **Printer Error State:** None<br>• **LCD Error Display:** None<br>• **Driver Monitor Error Display:** None |
| 2 | Ensure the cards are clean and stored in a dust-free environment. Do not use cards with embedded contaminants in the surface. |
| 3 | Clean the inside of the Printer. See Cleaning the Printer's Interior. |
| 4 | Clean the Cleaning Roller. See Cleaning the Card Feed and Cleaning Rollers. |

## Resolving the Incorrect Image Darkness problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Printed cards are too dark or too light.<br>• **Printer Error State:** None<br>• **LCD Error Display:** None<br>• **Driver Monitor Error Display**: None |
| 2 | Run a self-test to ensure that the issue is not with the Driver settings. |
| 3 | Adjust the **Dye-Sub Intensity** setting within the Image Color tab of the Printer Driver. See Using the Image Color tab procedure. |

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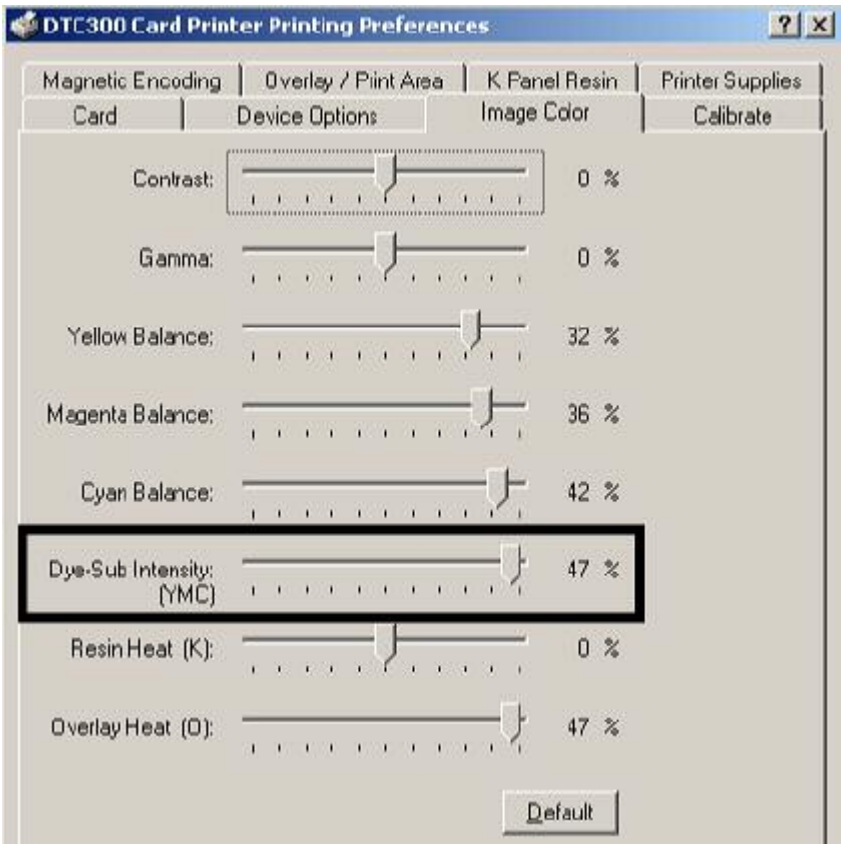

## Resolving the Incorrect Image Darkness problems (continued)

| Step | Procedure |
|---|---|
| 4 | Correct the **Image Darkness**. See the Using the Image Darkness option procedure. |


## Resolving Ribbon Wrinkle problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Printed cards have off-colored lines or streaks on them.<br>• **Printer Error State:** None<br>• **LCD Error Display:** None<br>• **Driver Monitor Error Display:** None |
| 2 | Confirm that the Printer is using the most current Driver via: http://www.fargo.com |
| 3 | Reduce the **Dye-Sub Intensity** setting within the Image Color tab of the Printer Driver. See the Using the Image Color tab. |

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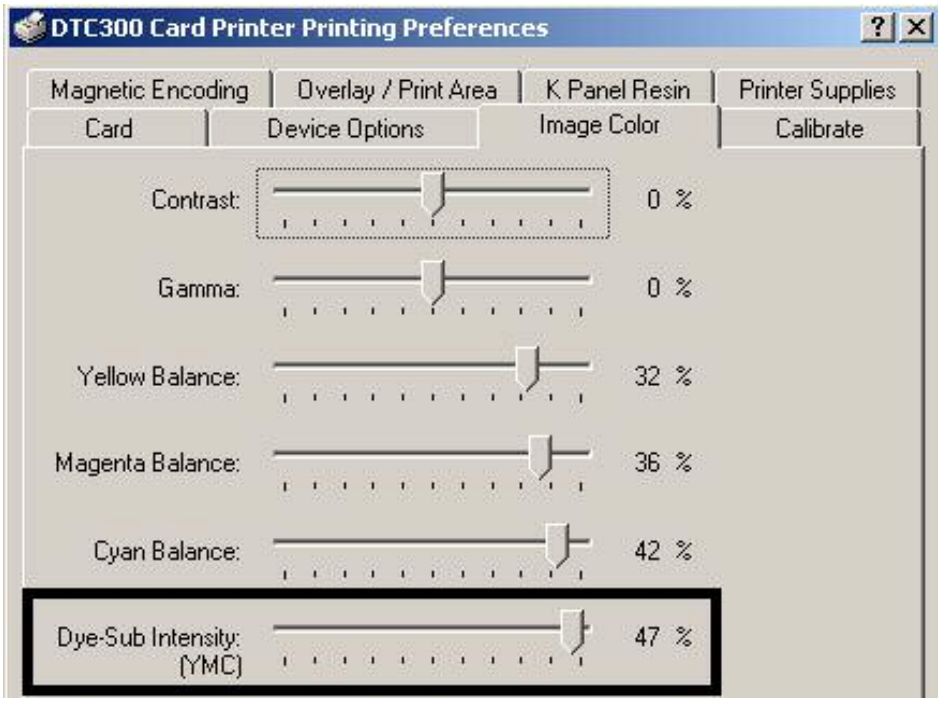

## Resolving Ribbon Wrinkle problems (continued)

| Step | Procedure |
|---|---|
| 4 | Reduce the Image Darkness. See the Using the Image Darkness option procedure. |

## Resolving the Excessive Resin Printing problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Black resin text and barcodes appear smeared or too thick.<br>• **Printer Error State:** None<br>• **LCD Error Display:** None<br>• **Driver Monitor Error Display:** None |
| 2 | Reduce the Resin Heat setting within the Image Color tab of the Printer Driver. See the Using the Image Color tab. |

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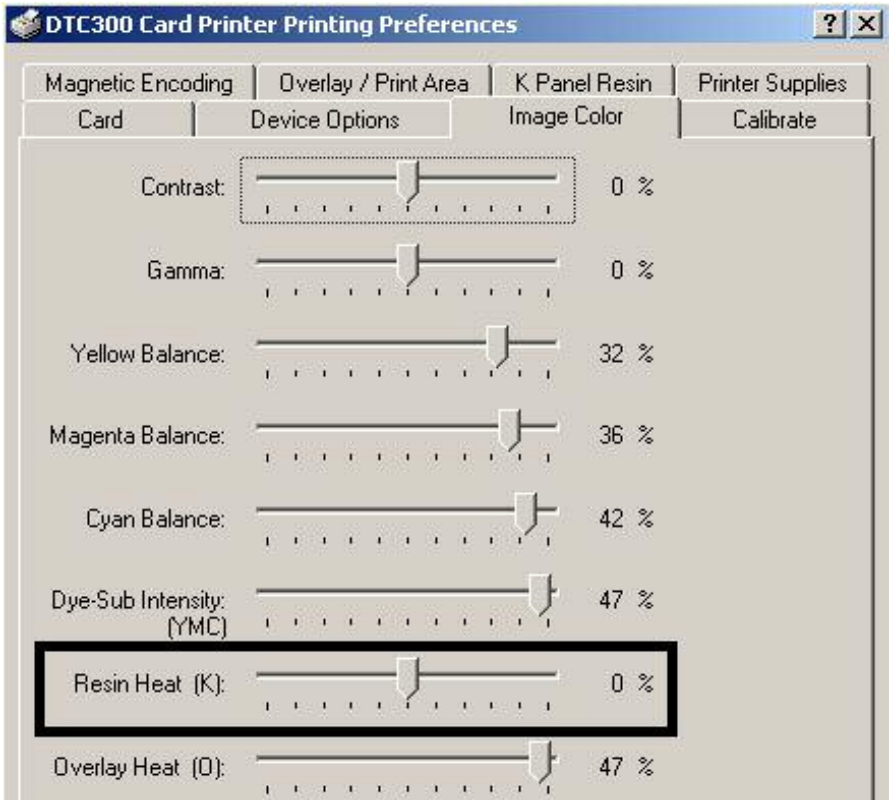
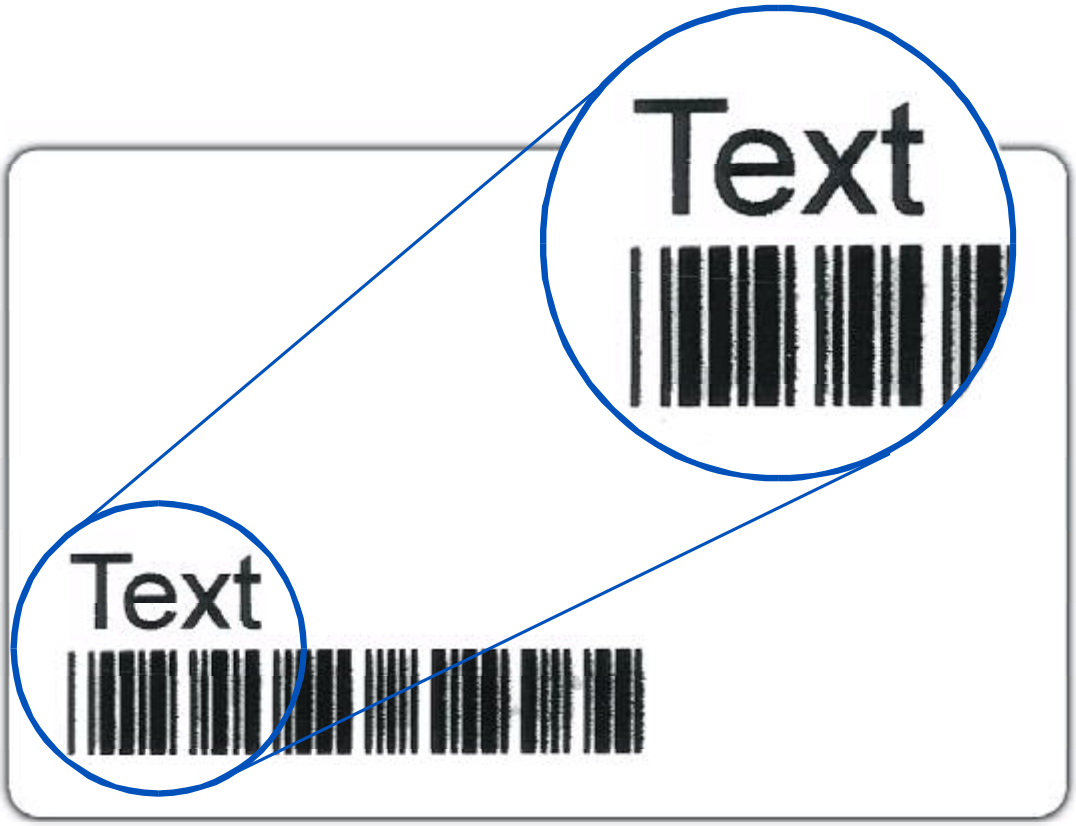


## Resolving the Excessive Resin Printing problems (continued)

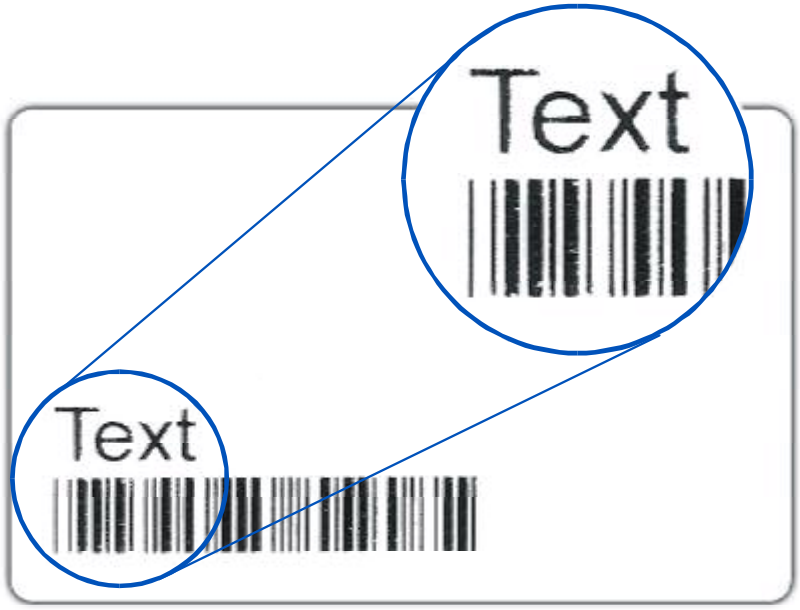
| Step | Procedure |
|---|---|
| 3 | Reduce the Image Darkness. See the Using the Image Darkness option procedure. |



## Resolving the Incomplete Resin Printing problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

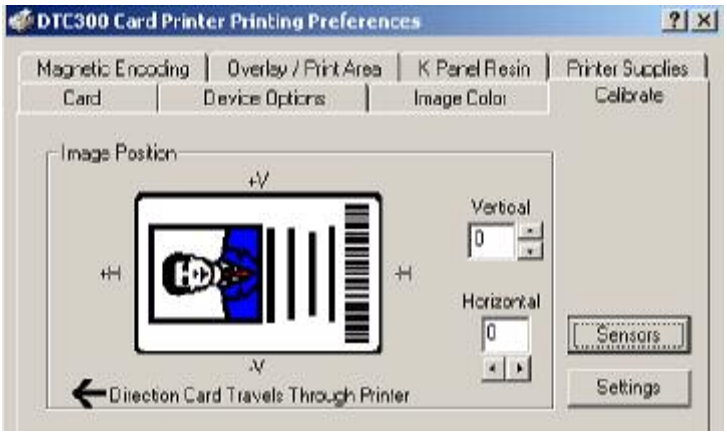
| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Black resin text and barcodes appear faded or too light.<br>• **Printer Error State:** None<br>• **LCD Error Display:** None<br>• **Driver Monitor Error Display:** None |
| 2 | Increase the **Resin Heat** setting within the Image Color tab of the Printer Driver. See the Using the Image Color tab. |
| 3 | Increase the **Image Darkness**. See the Using the Image Darkness option procedure. |



## Resolving the Image Placement problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer. This procedure is used to adjust the position of the card in the Print driver and does not change the internal settings of the printer. See Using the Printer Calibration Utility for instructions on changing the printers internal settings.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Printing is cut off or is not centered on the card, or a white border appears.<br>• **Printer Error State:** None<br>• **LCD Error Display:** None<br>• **Driver Monitor Error Display:** None |
| 2 | Verify if the Image Position option within the Calibrate tab is set correctly or incorrectly.<br>a. Open the Printer Control Panel from the Computer.<br>• If using Windows 98SE, Me, right click on the DTC400/DTC300/DTC300M Card Printer Icon and select **Properties**.<br>• If using Windows 2000/XP, right click on the DTC400/DTC300/DTC300M Card Printer and select **Printing Preferences**.<br>b. Click on the Calibrate tab.<br>c. Adjust the **Vertical** and/or **Horizontal Image Position** settings based on where the white border is on the card. |



## Resolving the Image Placement problems (continued)

| Step | Procedure |
|---|---|
| 3 | Verify if the **Horizontal Image Position Setting** is set correctly or incorrectly. See the graphic below.<br>• If the white border is on the leading edge of the card, adjust the Horizontal value by +2.<br>• If the white border is on the trailing edge of the card, adjust the Horizontal value by -2.<br>a. Click on **OK**.<br>b. Run a self-test.<br>c. If the white border is diminished, continue the adjustment until it is gone. |

*Continued on the next page*


Graphic A

## Resolving the Image Placement problems (continued)

| Step | Procedure |
|---|---|
| 4 | Verify if the **Vertical Image Position Setting** is set correctly or incorrectly. See the graphic below.<br>• If the white border is on the top edge of the card, adjust the Vertical value by +2.<br>• If the white border is on the botom edge of the card, adjust the Vertical value by -2.<br>a. Click on **OK**.<br>b. Run a self-test.<br>c. If the white border is diminished, continue the adjustment until it is gone. |


Graphic B

## Resolving the Poor Image Quality problems

All Troubleshooting procedures assume that only factory-authorized supplies are in use in the Printer.

| Step | Procedure |
|---|---|
| 1 | Review the following information.<br>• **Symptom:** Photos on the cards look pixilated or grainy, as shown below.<br>• **Printer Error State:** None<br>• **LCD Error Display:** None<br>• **Driver Monitor Error Display:** None |
| 2 | Use high-resolution, 24-bit color images to always capture an image:<br>• at a 24-bit color setting<br>• at 300 dpi<br>• at the same size that it will be printed on the card, as captured either with a scanner or with a digital camera<br>If a small or low-resolution image is stretched or blown up, a pixilated or grainy effect will occur when printing, as shown below (rightside). |

Good

Bad

# Running the Self Test

Perform a self-test after (a) an initial setup of the Printer, (b) a calibration procedure has been conducted, or (c) a part has been replaced to check for proper Printer operation.

| Step | Procedure |
|---|---|
| 1 | Verify that a full-color or Premium Resin Ribbon Cartridge is installed and that cards are properly loaded.<br>  **Caution:** If the power is ON, disconnect the Power Cable from the Printer's rear panel. |
| 2 | Press and hold the **Pause/Resume** button. |
| 3 | While holding down the **Pause/Resume** button, plug the power cable back into the Printer. |
| 4 | • Full Color Ribbon Cartridge installed: The Printer will print a 3-color process gray scale on the front of the card. The overlay pass is not printed during the Self-test. (See Display A below)<br>• Premium Resin Ribbon Cartridge installed: The Printer will print a single color gray scale on the front of the card. See Display B below) |

## Running the Standard Self Test Print

Display A Full Color Test Print

**Display B Resin Test Print**

**(insert image of resin test print)**

## Running the Magnetic Self Test (HiCo Only)

Perform a self-test after (a) an initial setup of the Printer, (b) a calibration procedure has been conducted, or (c) a part has been replaced to check for proper Printer operation.

| Step | Procedure |
|---|---|
| 1 | Remove Ribbon Cartridge from the Printer and close the front cover<br>  **Caution:** If the power is ON, disconnect the Power Cable from the Printer's rear panel. |
| 2 | Press and hold the **Pause/Resume** button. |
| 3 | While holding down the **Pause/Resume** button, plug the power cable back into the Printer. |
| 4 | The Printer will Encode magnetic information on all 3 magnetic tracks |

# Section 5: Printer Adjustments

See this section for printer adjustments.

## Table of Contents

# Safety Messages (review carefully)

| Symbol | Critical Instructions for Safety purposes |
|---|---|
| **Danger:**  | **Failure to follow these installation guidelines can result in death or serious injury.**<br>Information that raises potential safety issues is indicated by a warning symbol (as shown to the below).<br>• **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol.<br>• **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified.<br>• **To prevent personal injury**, make sure only qualified personnel perform these procedures. |
| **Caution:**  | **This device is electrostatically sensitive. It may be damaged if exposed to static electricity discharges.**<br>Information that raises potential electrostatic safety issues is indicated by a warning symbol (as shown to the below).<br>• **To prevent equipment or media damage**, refer to the following safety messages before performing an operation preceded by this symbol.<br>• **To prevent equipment or media damage**, observe all established Electrostatic Discharge (ESD) procedures while handling cables in or near the Circuit Board and Printhead Assemblies.<br>• **To prevent equipment or media damage**, always wear an appropriate personal grounding device (e.g., a high quality wrist strap grounded to avoid potential damage).<br>• **To prevent equipment or media damage**, always remove the Ribbon and Cards from the Printer before making any repairs, unless otherwise specified.<br>• **To prevent equipment or media damage**, take jewelry off of fingers and hands, as well as thoroughly clean hands to remove oil and debris before working on the Printer. |

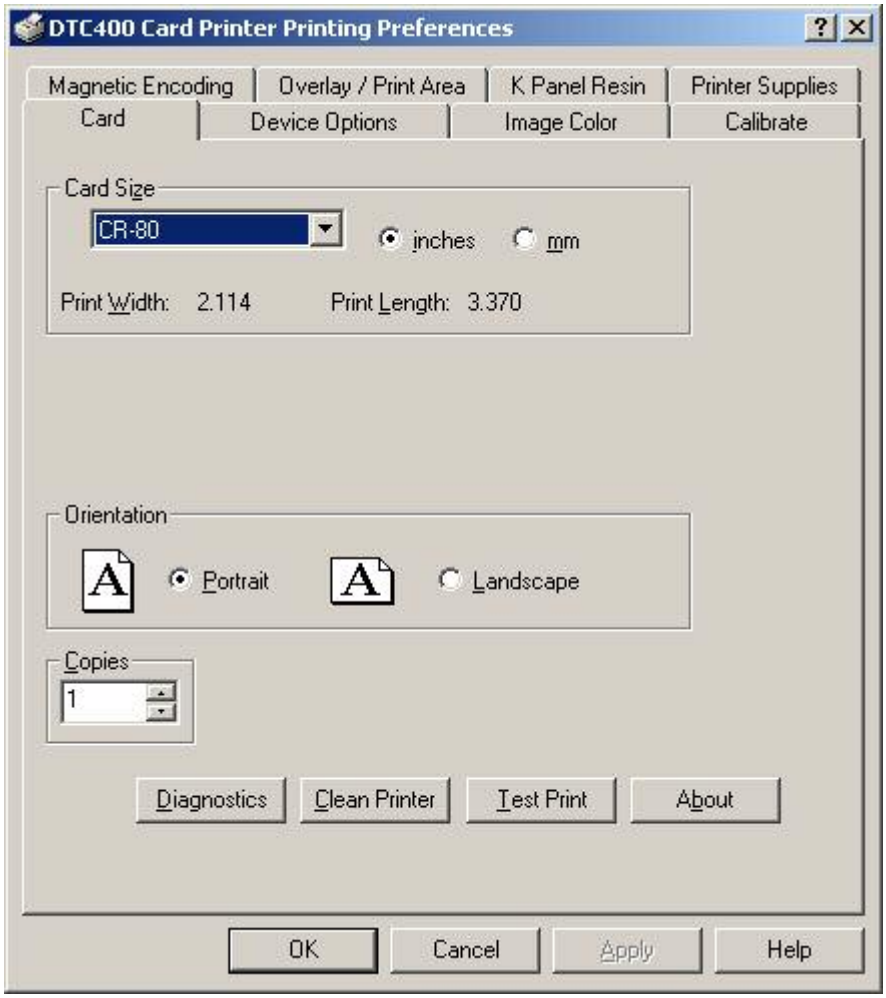
# DTC400/DTC300 Print Driver Options

## Reviewing DTC400, DTC300 and DTC300M Printer Drivers

The functionality of the DTC400, DTC300 and DTC300M Printer Drivers is identical. The window title reflects the specific Printer Driver in use as shown in this introductory section.

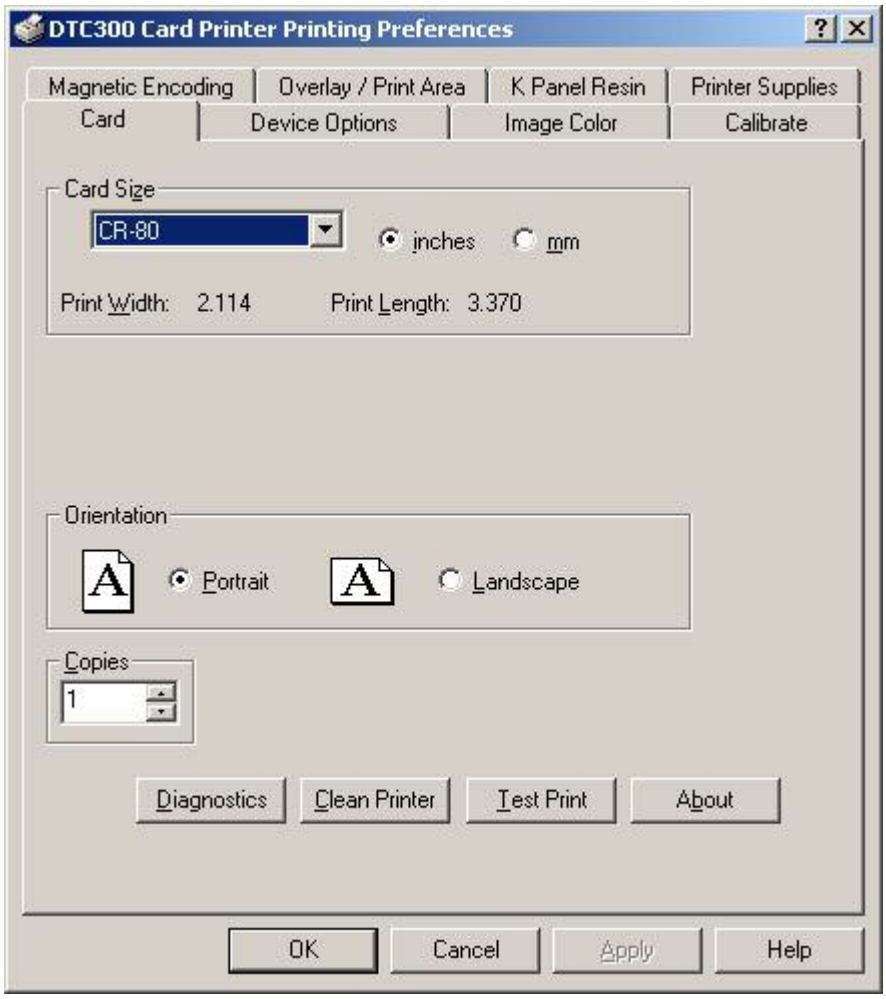
## Reviewing DTC400 Printer Drivers

This section applies to the DTC400 Printer.



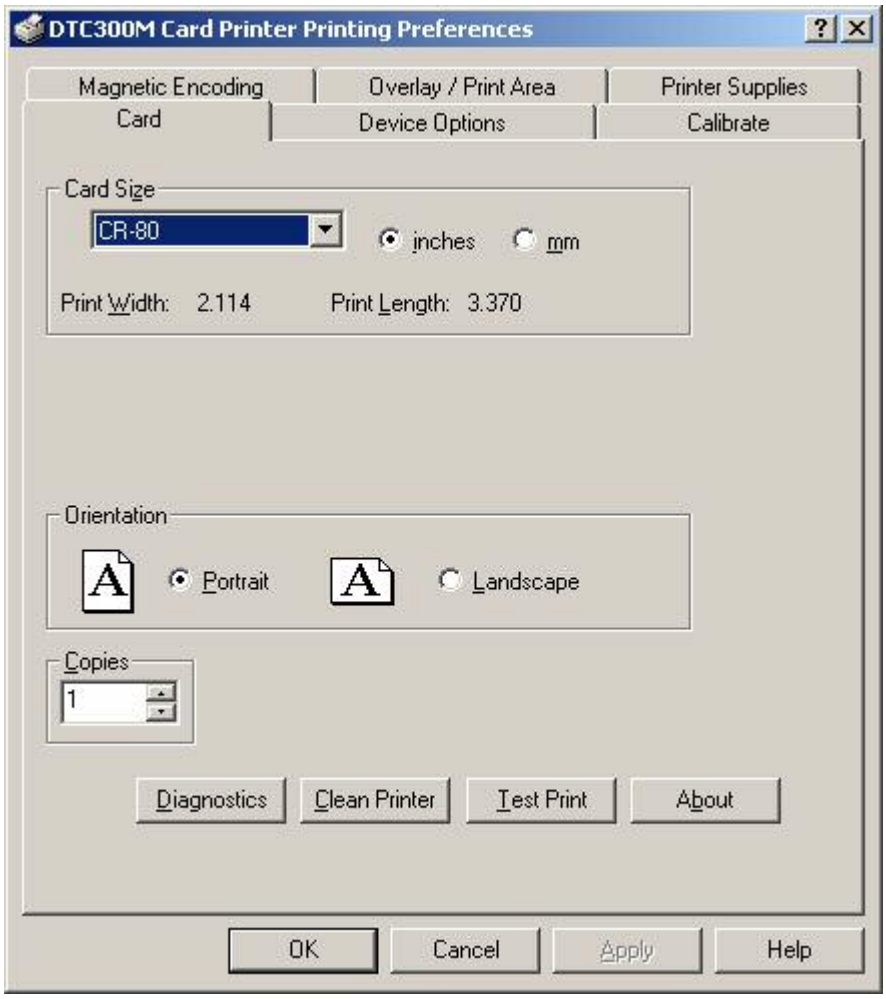
## Reviewing DTC300 Printer Driver

This section applies to the DTC300 Printer.



## Reviewing DTC300M Printer Drivers

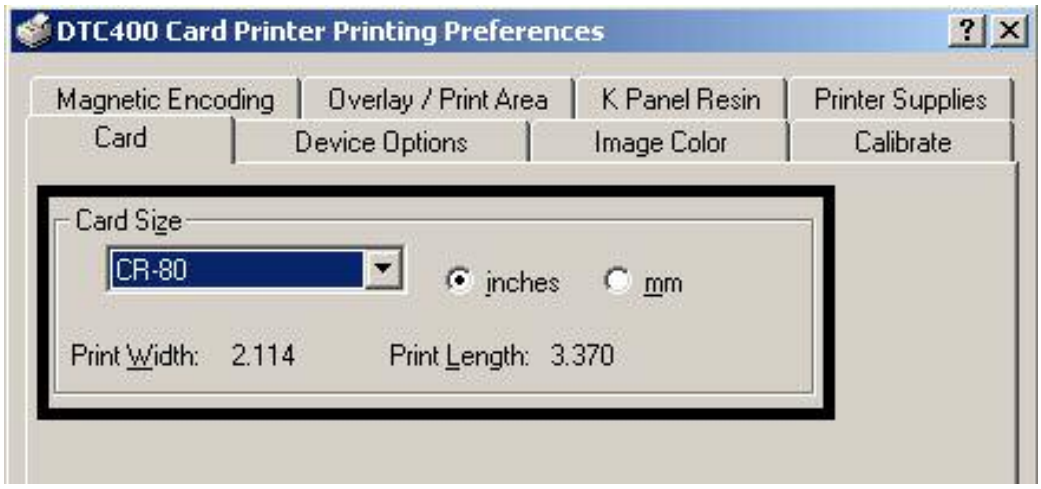
This section applies to the DTC300M Printer.



# Using the Card tab

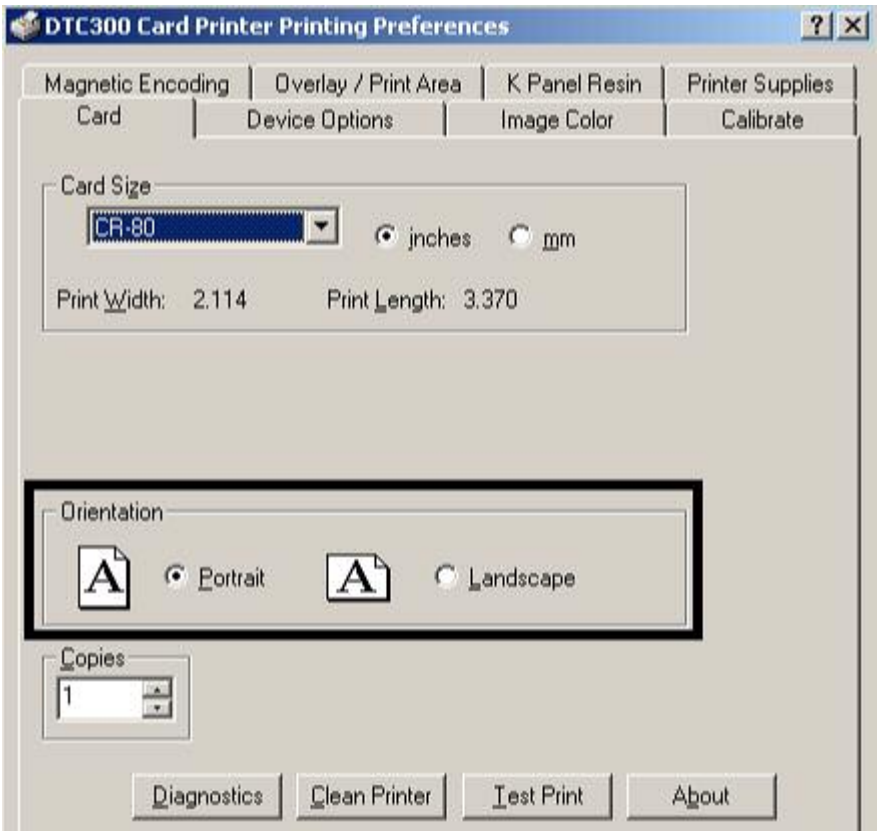
## Adjusting the Card Size Option

| Step | Description |
|---|---|
| 1 | Click on the **inches** or **mm** option to choose the desired unit of measurement.<br>(**Note No.1:** When designing a card format, always set the card size or page size within the card design program to the exact dimensions of a CR-80 card.)<br>(**Note No.2:** The Card Size indicates that the Printer accepts standard, "credit card" size CR-80 (ISO ID-1) cards. The dimensions of the total print area for this card size appear in the Print Width and Print Length boxes.) |



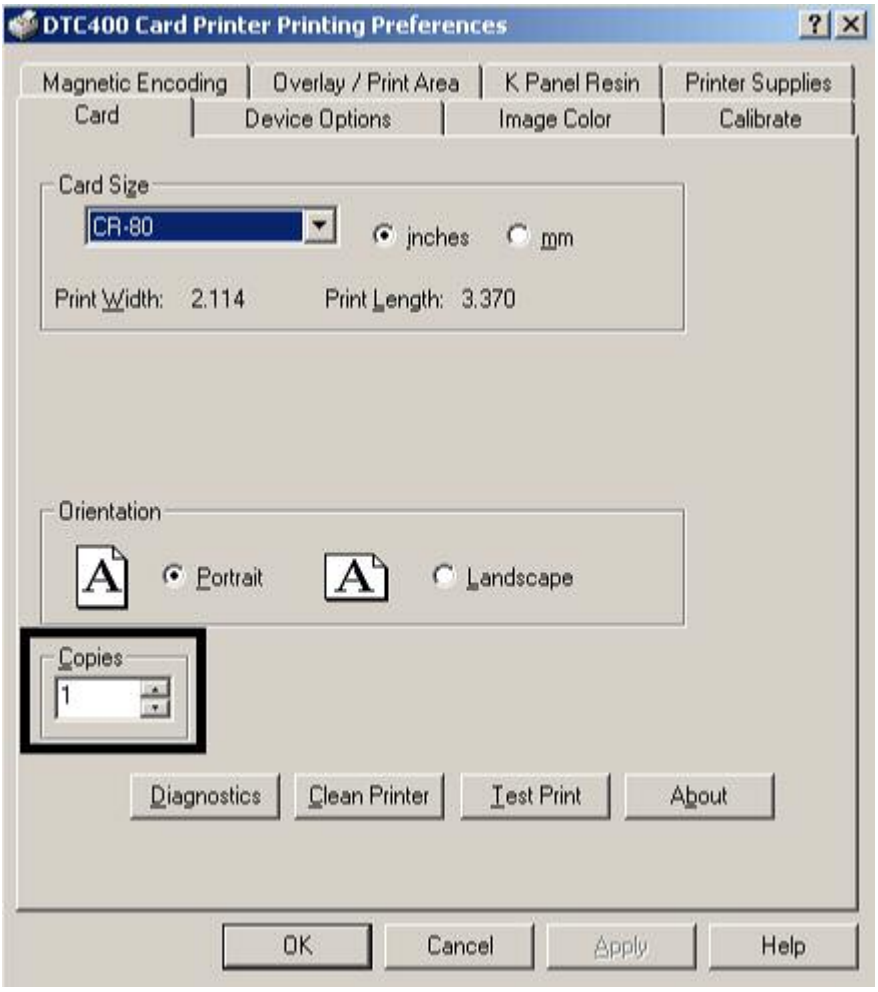
## Adjusting the Orientation Option

| Step | Description |
|---|---|
| 1 | Select **Portrait** under Orientation to cause the card to print in a vertical orientation.<br>**OR**<br>Select **Landscape** under Orientation to cause the card to print in a horizontal orientation.<br>(**Note:** An icon illustrating a printed card helps represent the difference between the two.) |



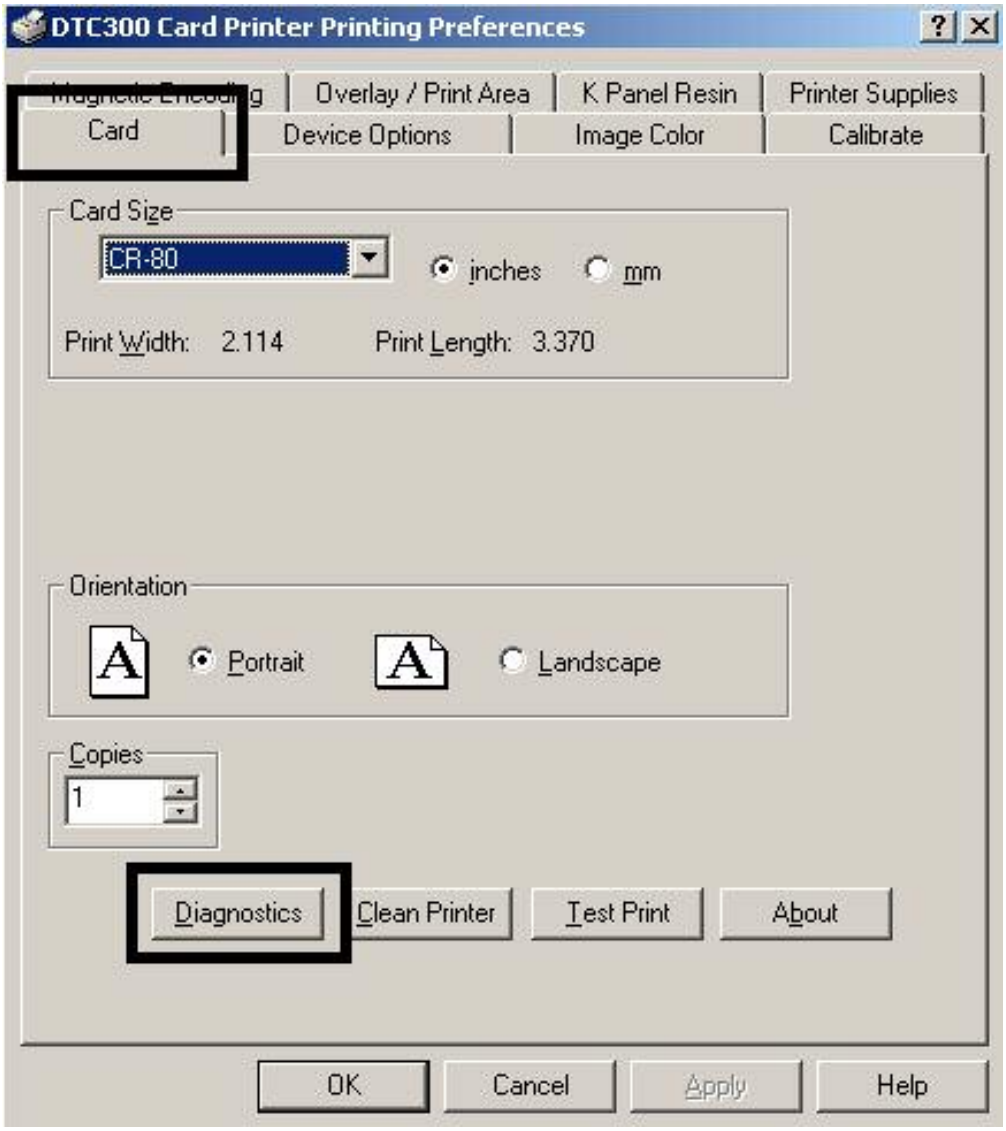
## Selecting the number of copies

| Step | Description |
|---|---|
| 1 | Select the number of copies by clicking on the UP or DOWN arrows, as shown below. |



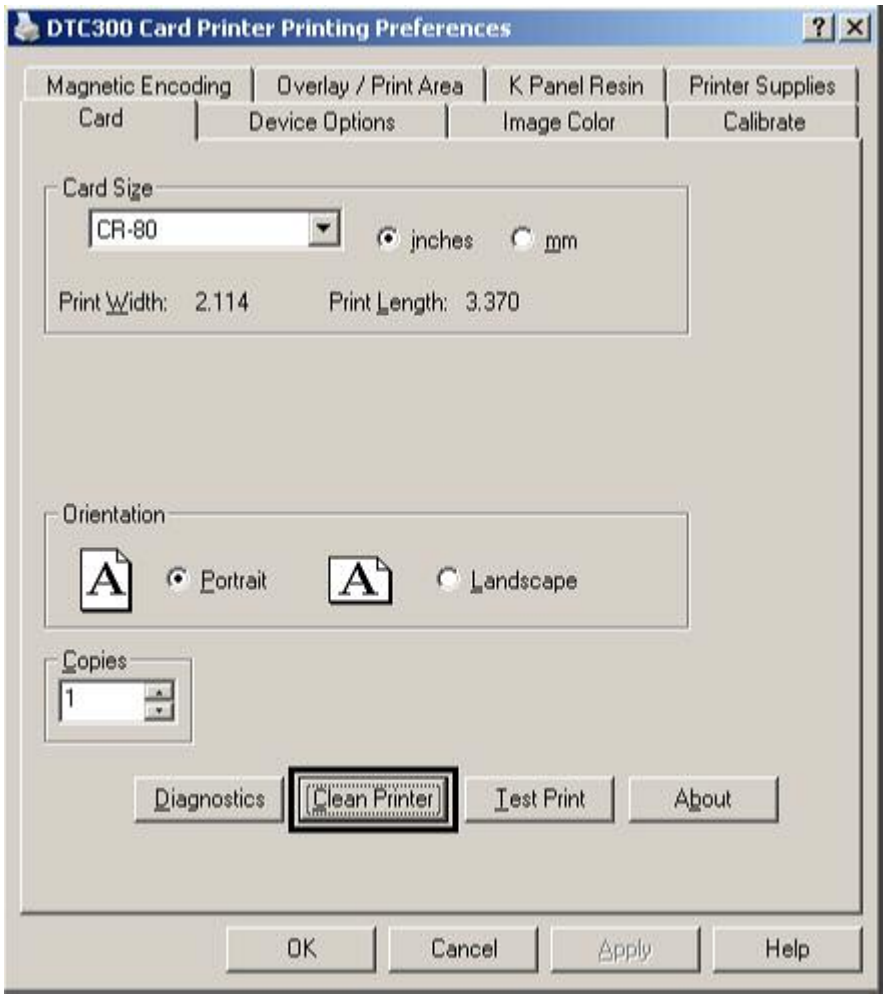
## Using the Diagnostics button under the Card tab

| Step | Description |
|---|---|
| 1 | Click on the Diagnostic button to bring up the Fargo Diagnostics Utility window. See the Section 9: Diagnostic Tool Utility. |



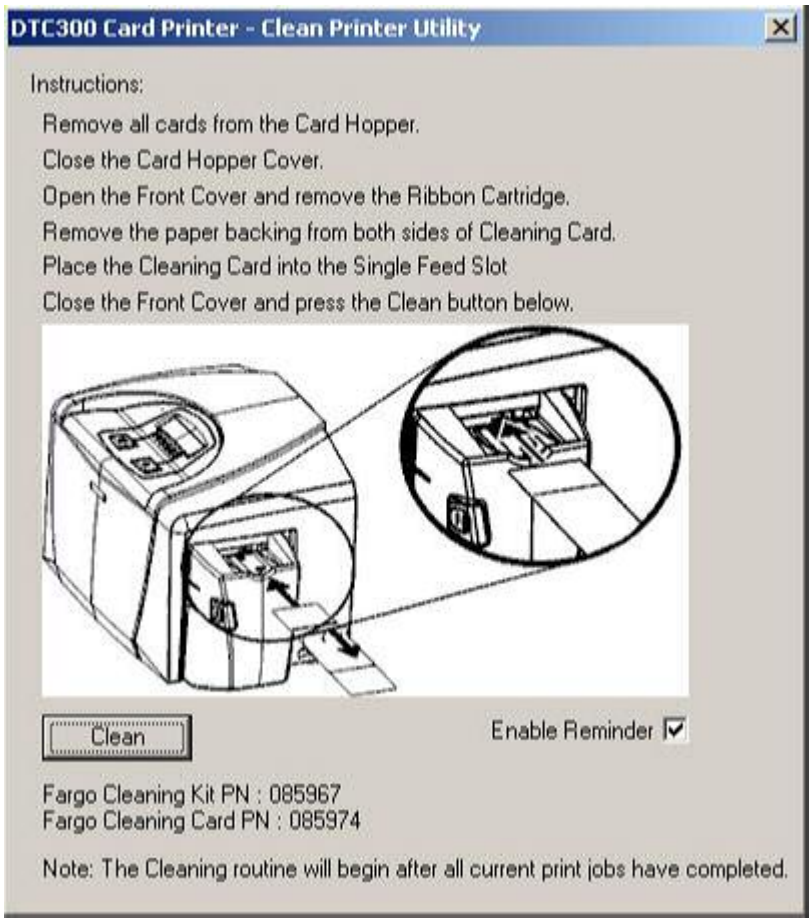
## Using the Clean Printer Option

| Step | Description |
|---|---|
| 1 | Click on the **Clean Printer** button to display the Clean Printer Utility window. |
| 2 | Remove all cards from the Card Hopper and close the Hopper door. |
| 3 | Open the Front Cover and remove the Ribbon Cartridge. |
| 4 | Remove the paper backing from both sides of the Cleaning Card. |
| 5 | Place the Cleaning card into the Single Feed Slot. |



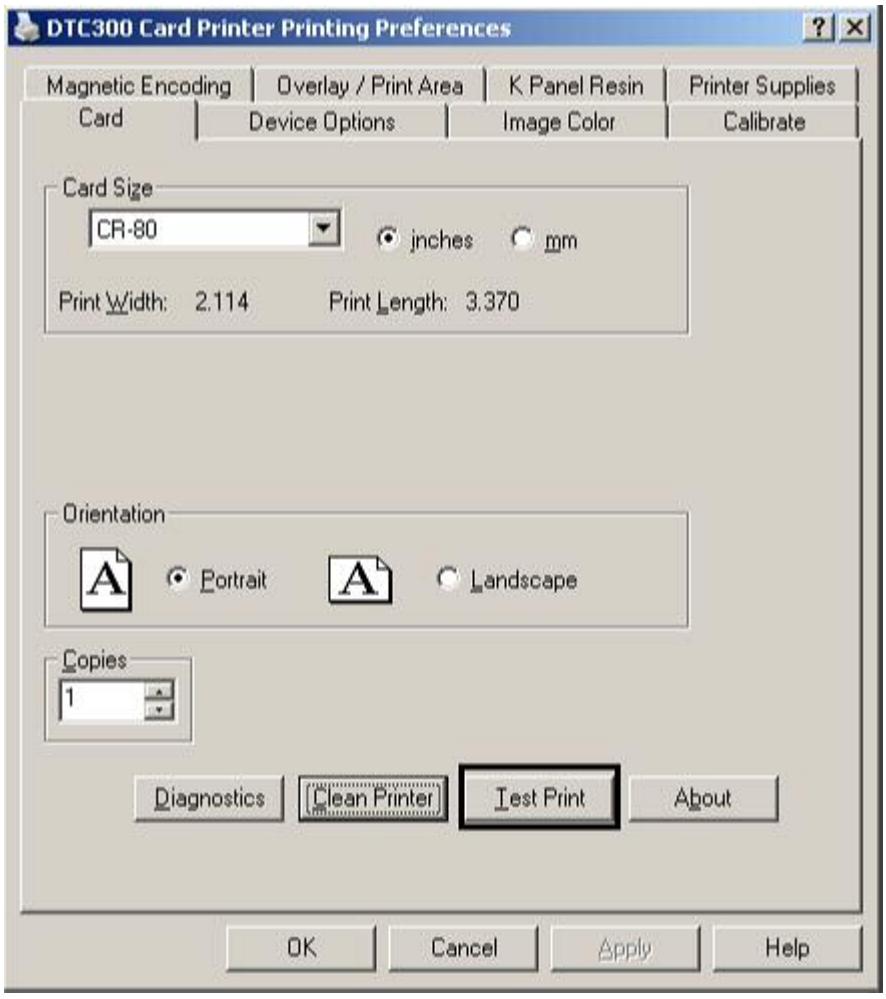
## Using the Clean Printer Option (Continued)

| Step | Description |
|---|---|
| 6 | Click on the **Clean** button at the bottom of the window. (**Note**: The Printer will begin to feed the cleaning card through the card path.) |
| 7 | Reinsert the print Ribbon and cards after the cleaning procedure has completed. |



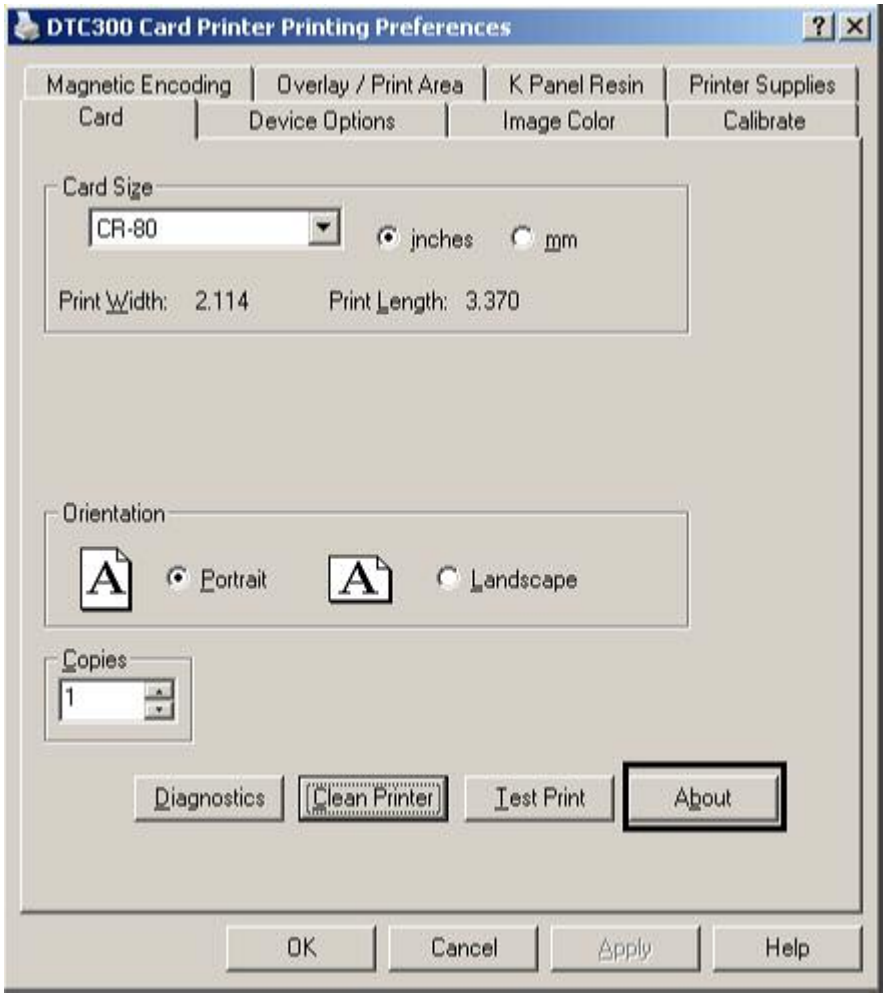
## Using the Test Print button

| Step | Description |
|---|---|
| 1 | Click on the **Test Print** button to send a simple self-test print to the Printer.<br>• Ensure that a **YMCKO** Ribbon is installed for DTC400/DTC300 or a **Premium Resin** Ribbon installed for DTC300M.<br>• Ensure that the computer is effectively communicating with the Printer and that the Printer is functioning properly. |



## Using the About button

| Step | Description |
|---|---|
| 1 | Click on the **About** button to open a dialog box containing the copyright and version, date code information about this Printer Driver software. |

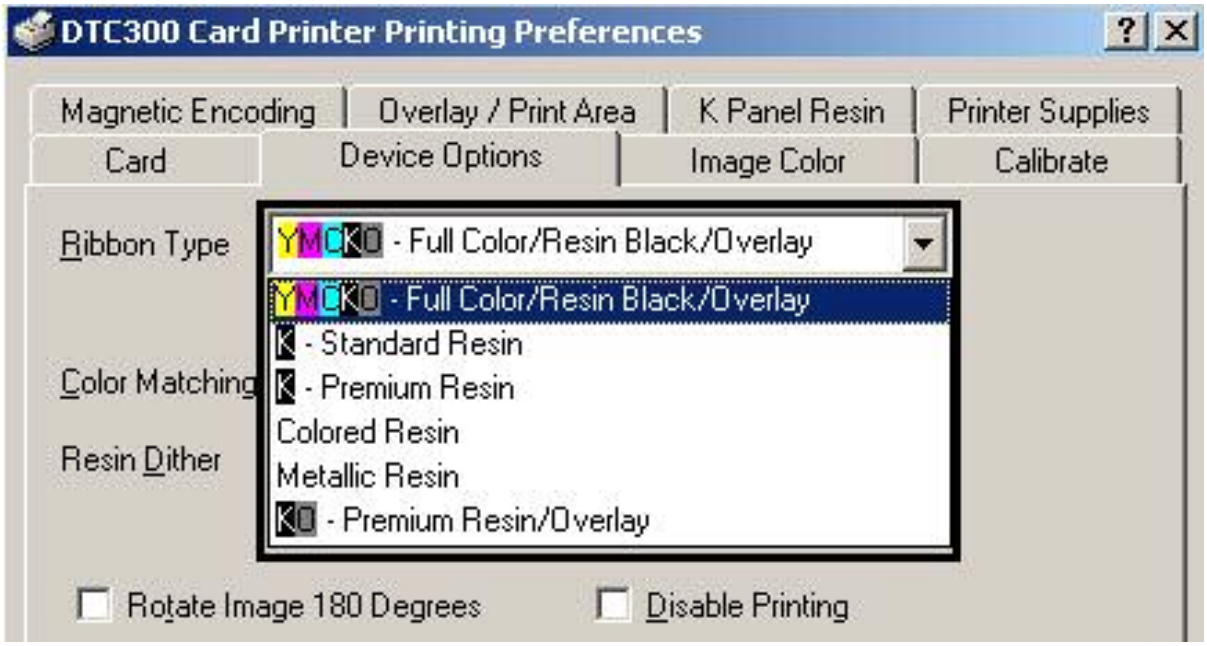


# Using the Device Options tab (DTC400/DTC300)

## Adjusting the Ribbon Type option

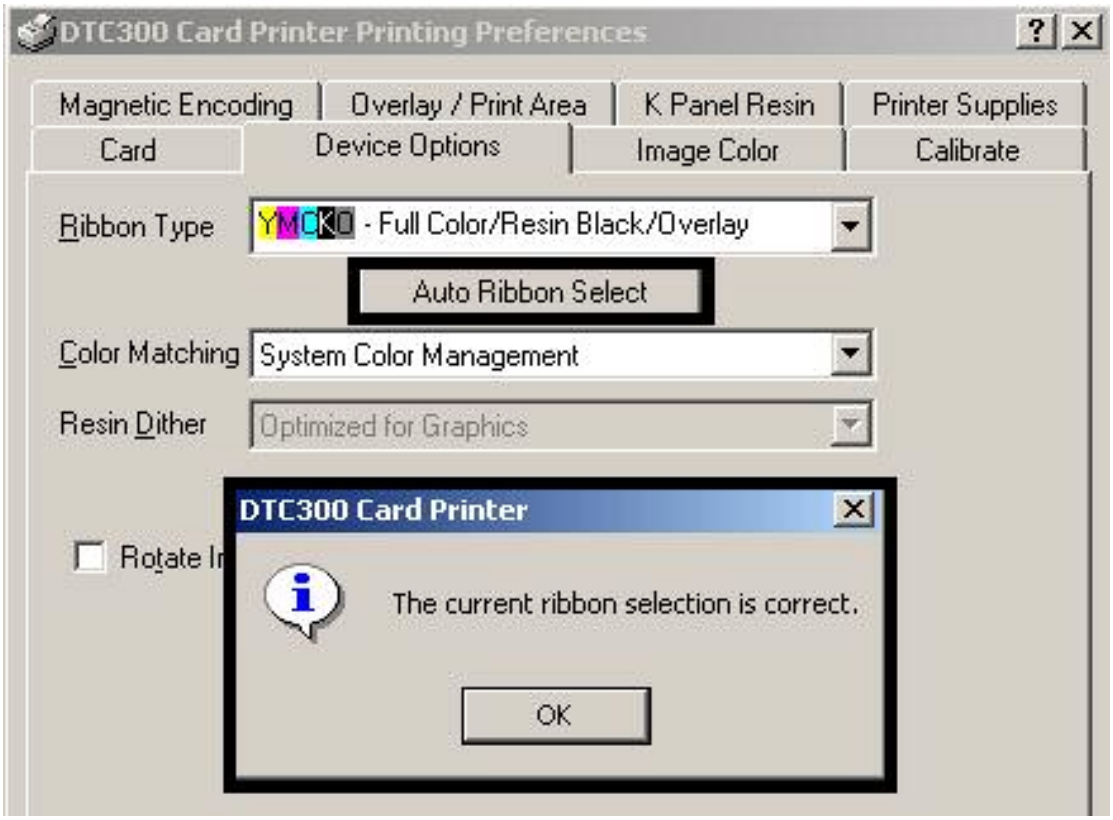
Use the Ribbon Type option to select print Ribbons.

| Step | Description |
|---|---|
| 1 | Select the appropriate print **Ribbon Type** option from the dropdown menu for the type of print Ribbon in use.<br>• YMCKO – Full Color/Resin Black/Overlay<br>• K – Standard Resin<br>• K – Premium Resin<br>• Colored Resin<br>• Metallic Resin<br>• KO – Premium Resin/Overlay |



## Selecting the Auto Ribbon Select option

| Step | Description |
|---|---|
| 1 | Click on the **Auto Ribbon Select** button to verify that the Ribbon type selected matches the Ribbon installed in the Printer. (**Note**: The Printer Driver will change the Ribbon type to the correct setting or validate. It will also display a dialog that it has changed the current setting or that the current Ribbon type is correct.) |



## Adjusting the Color Matching option

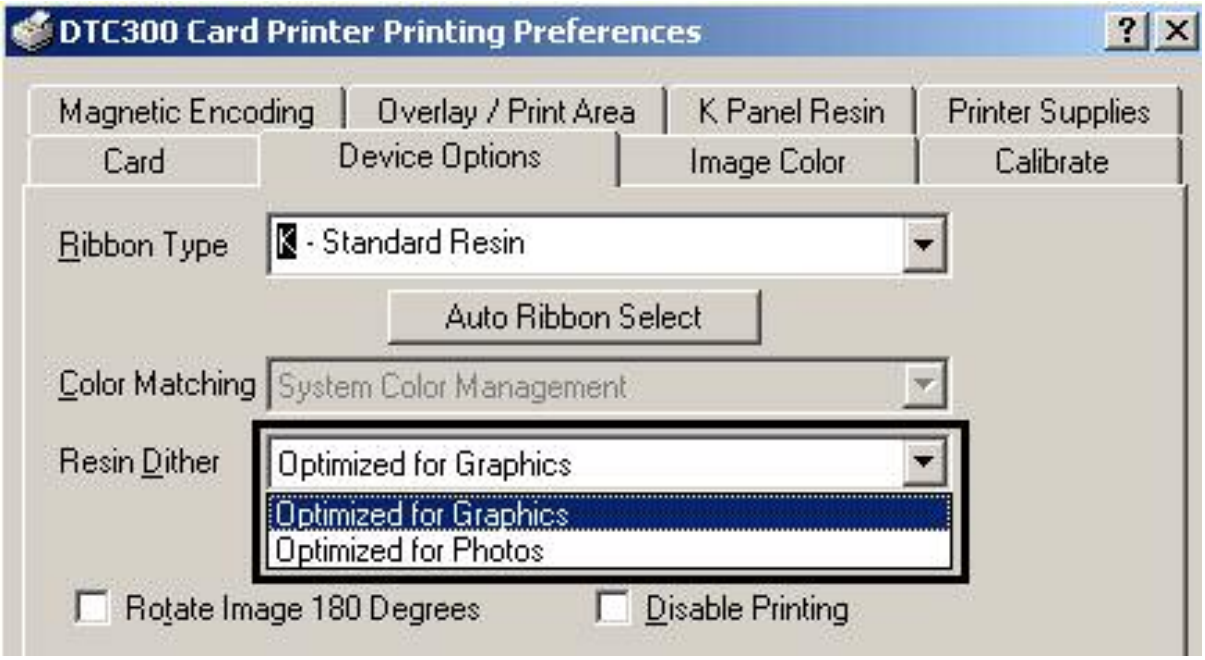
Use the **Color Matching** dropdown menu to choose the color matching options which best fits the print job requirements.

| Step | Description |
|---|---|
| 1 | Select **None** for print speed versus print color or for use of third party color matching software.<br>**OR**<br>Select **Algebraic** (a) for the Printer Driver to make very simple, yet fast, color balance adjustments; (b) for more natural looking images without actually utilizing any specific color matching; or (c) for customized, printed coloring of the cards through the Image Color tab.<br>**OR**<br>Select **Monitor** for the Printer Driver to make color corrections similar to the Algebraic option but through a more complex color matching algorithm.<br>**OR**<br>Select **System Color Management** for Windows to make color corrections. This provides a closer match to the sRGB color specifications. (**Note:** This option shifts colors to a different color model so the colors in the image will more closely match how they appear on the monitor.) |

## Adjusting for the Resin Dither

Select the appropriate dither method according to the type of image to be printed. This option affects objects printed with a resin-only print Ribbon.

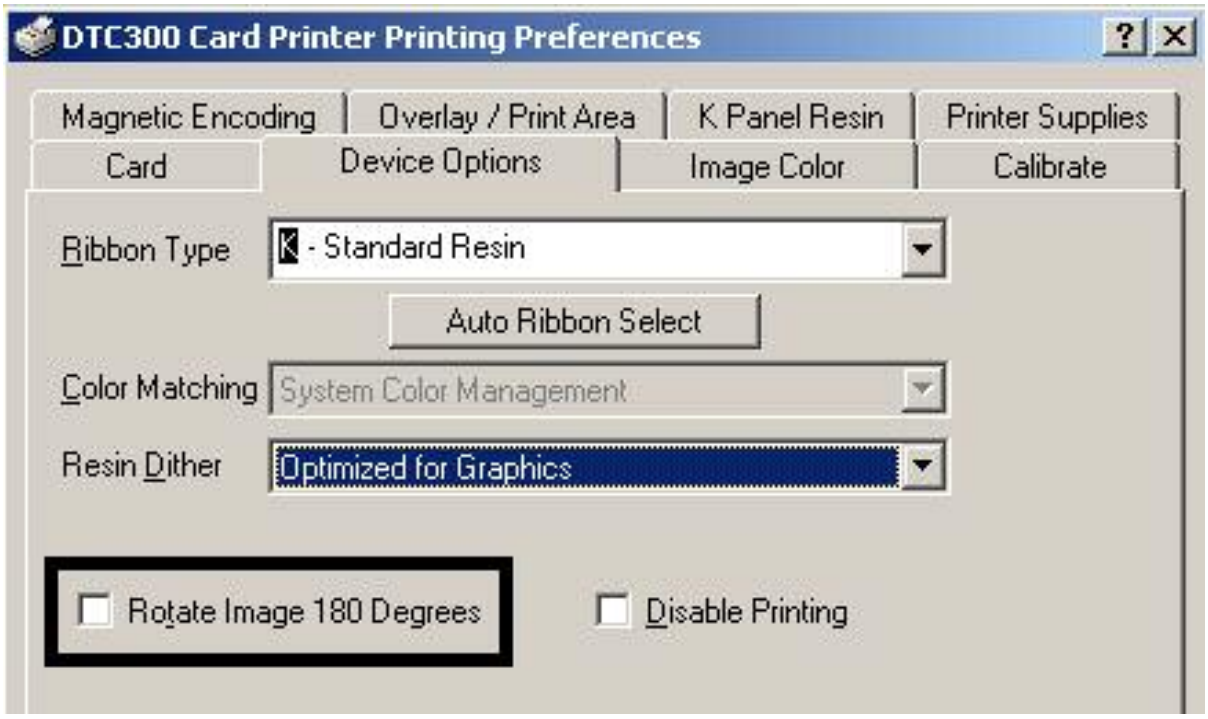
| Step | Procedure |
|---|---|
| 1 | Select **Optimized for Photo** when printing photo quality images with resin.<br>**OR**<br>Select **Optimized for Graphics** when printing drawings and graphics (e.g., clipart, logos, etc.) with resin. |



## Using the Rotate Image 180 Degrees option

Use this option to rotate the image on the front of the card 180 degrees when printed.

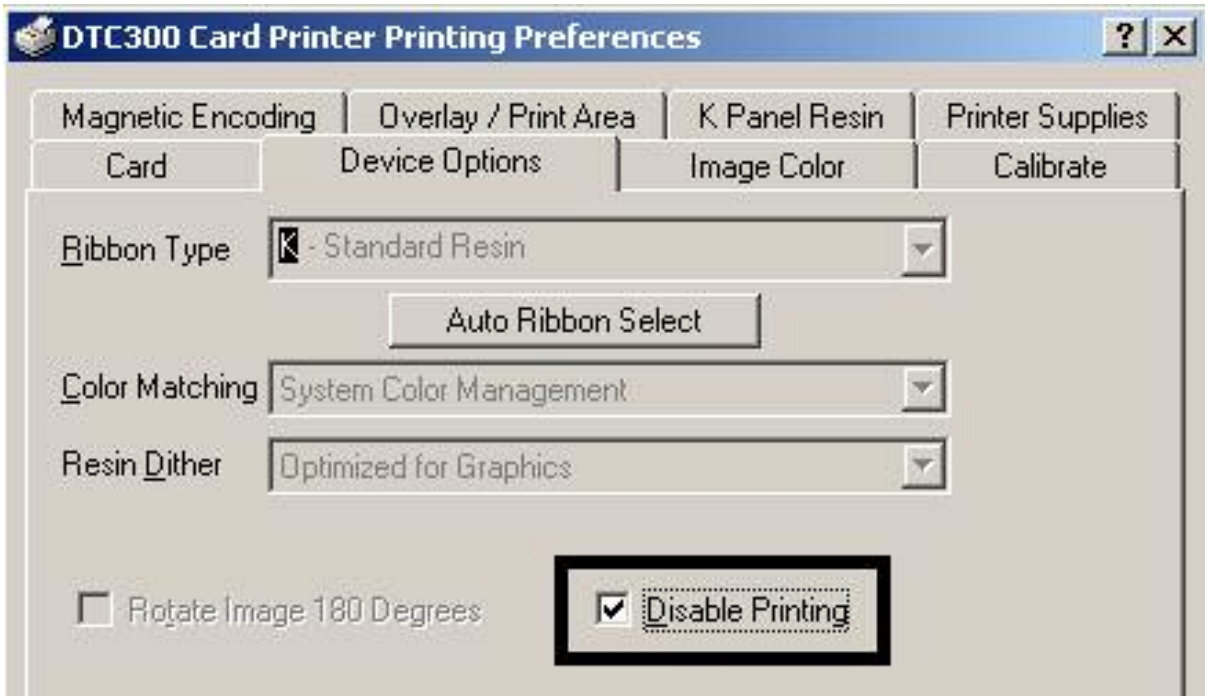
| Step | Description |
|---|---|
| 1 | Select this option to change the position of the printed image in relation to the set location of a card's Magnetic Stripe or smart chip. |



## Using the Disable Printing option

Use this option to disable the printing capabilities of the Printer, yet still allows the Printer to encode cards.

| Step | Description |
|---|---|
| 1 | Select this option to encode or re-encode cards without wasting additional time, effort, or printing supplies. (**Note:** When this option is selected, no print data will not be sent to the Printer. All encoding instructions will be sent according to how they are configured within the software.) |

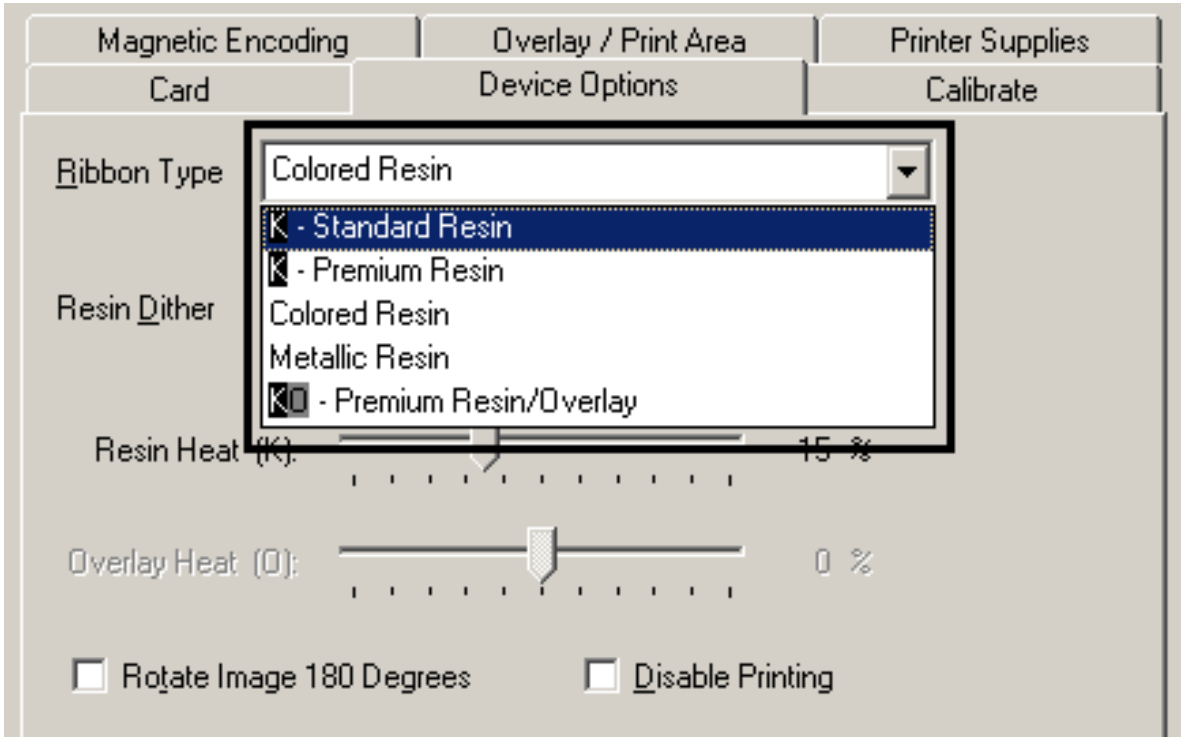


# Using the Device Options tab (DTC300M)

## Adjusting the Ribbon Type option

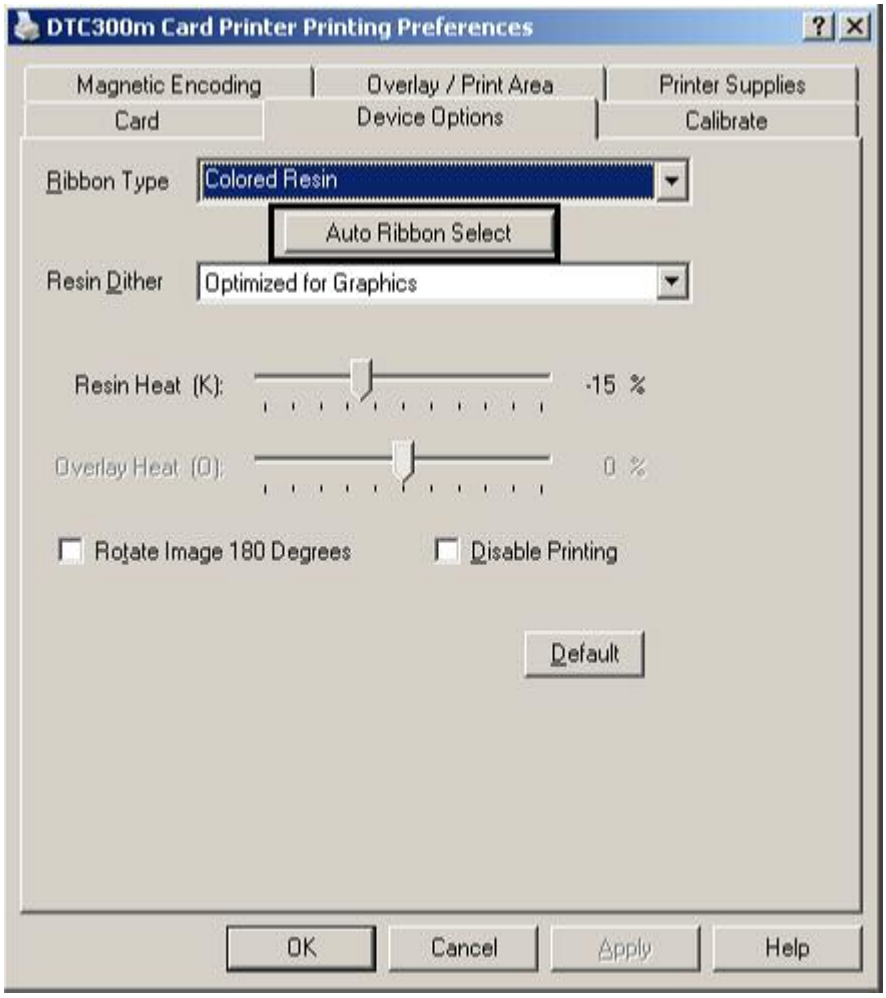
Use the Ribbon Type option to select print Ribbons.

| Step | Description |
|---|---|
| 1 | Select the appropriate print **Ribbon Type** option from the dropdown menu for the type of print Ribbon in use.<br>• K – Standard Resin<br>• K – Premium Resin<br>• Colored Resin<br>• Metallic Resin<br>• KO – Premium Resin/Overlay |



## Selecting the Auto Ribbon Select option

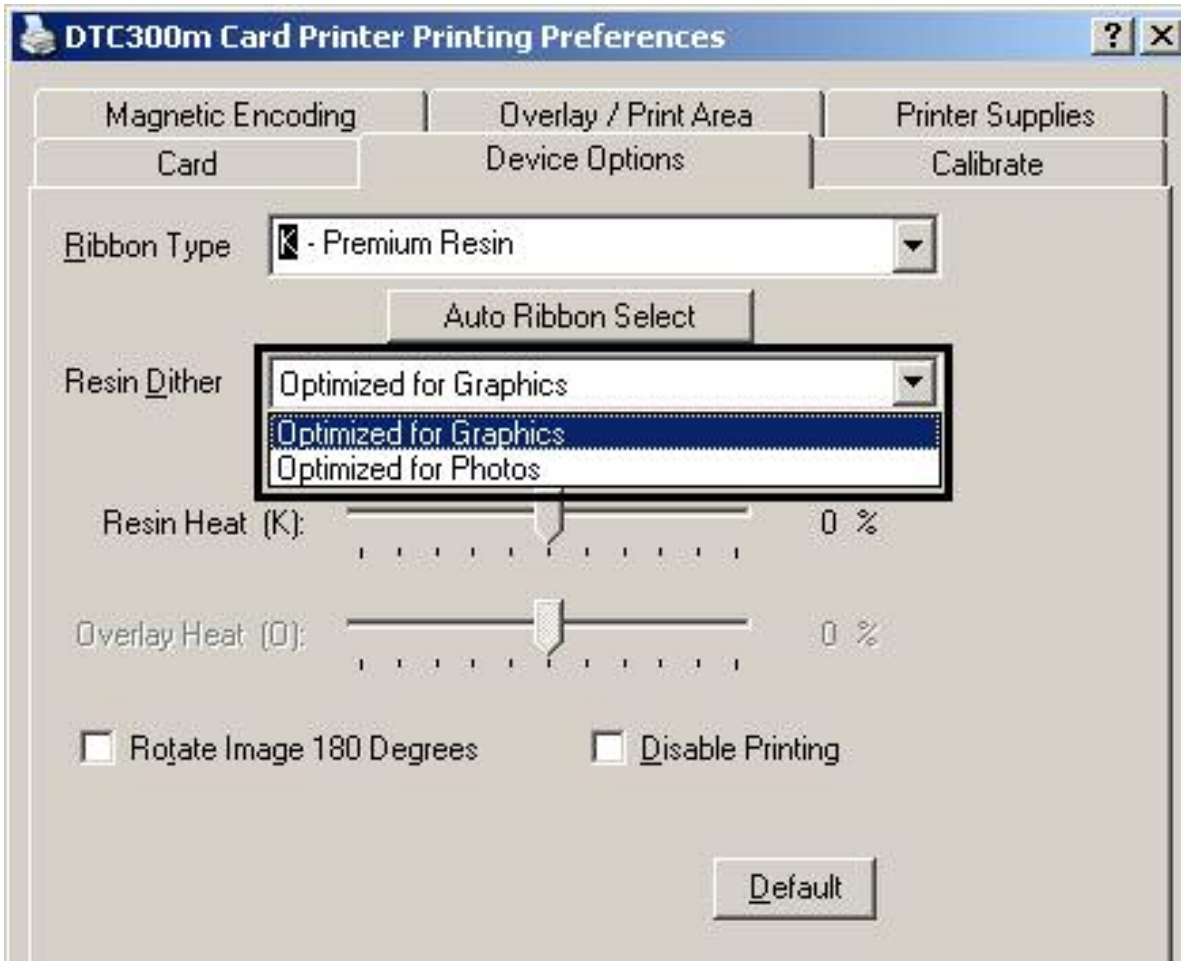
| Step | Description |
|---|---|
| 1 | Click on the **Auto Ribbon Select** button to verify that the Ribbon type selected matches the Ribbon installed in the Printer. (**Note**: The Printer Driver will change the Ribbon type to the correct setting or validate. It will also display a dialog that it has changed the current setting or that the current Ribbon type is correct.) |



## Adjusting for the Resin Dither

Select the appropriate dither method according to the type of image to be printed. This option affects objects printed with a resin-only print Ribbon.

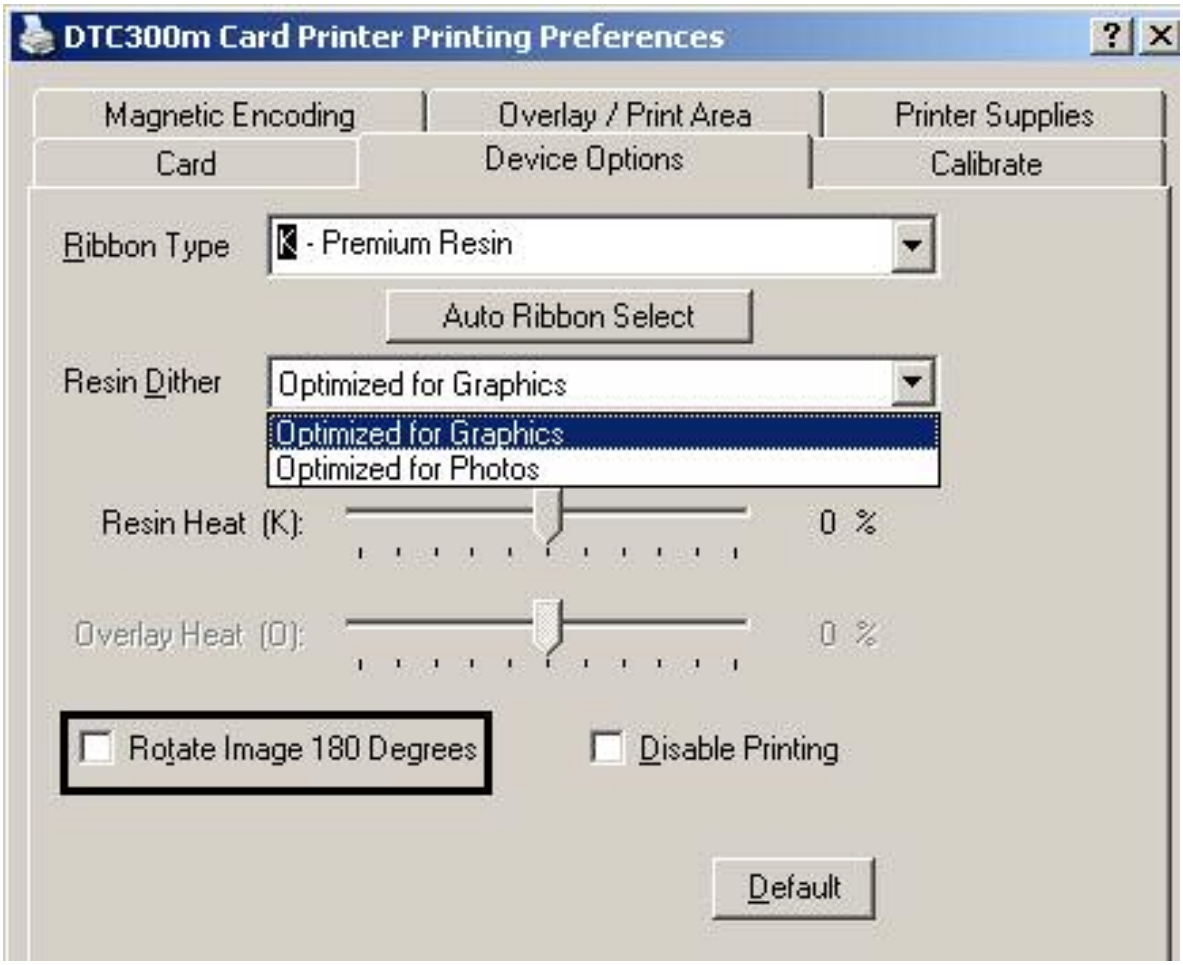
| Step | Procedure |
|---|---|
| 1 | Select **Optimized for Photo** when printing photo quality images with resin.<br>**OR**<br>Select **Optimized for Graphics** when printing drawings and graphics (e.g., clipart, logos, etc.) with resin. |



## Using the Rotate Image 180 Degrees option

Use this option to rotate the image on the front of the card 180 degrees when printed.

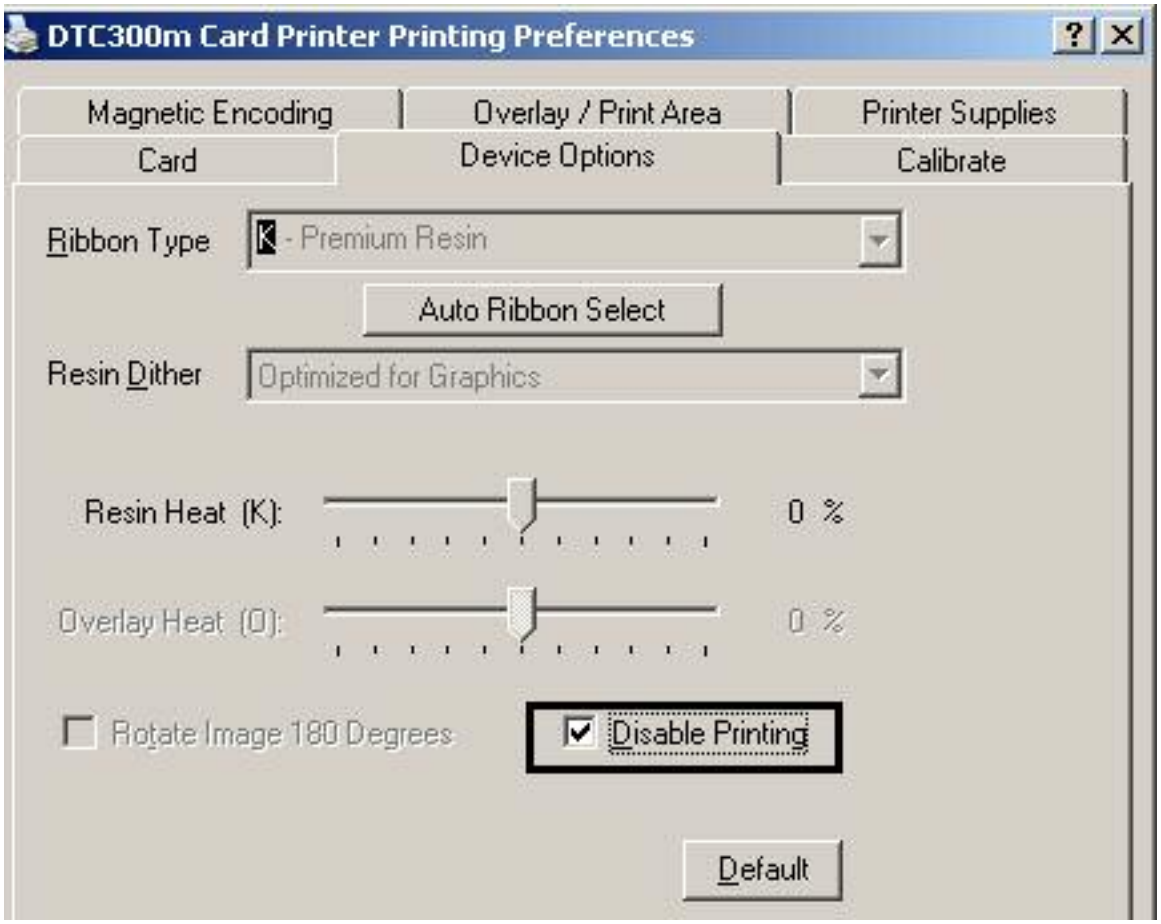
| Step | Description |
|---|---|
| 1 | Select this option to change the position of the printed image in relation to the set location of a card's Magnetic Stripe or smart chip. |



## Using the Disable Printing option

Use this option to disable the printing capabilities of the Printer, yet still allows the Printer to encode cards.

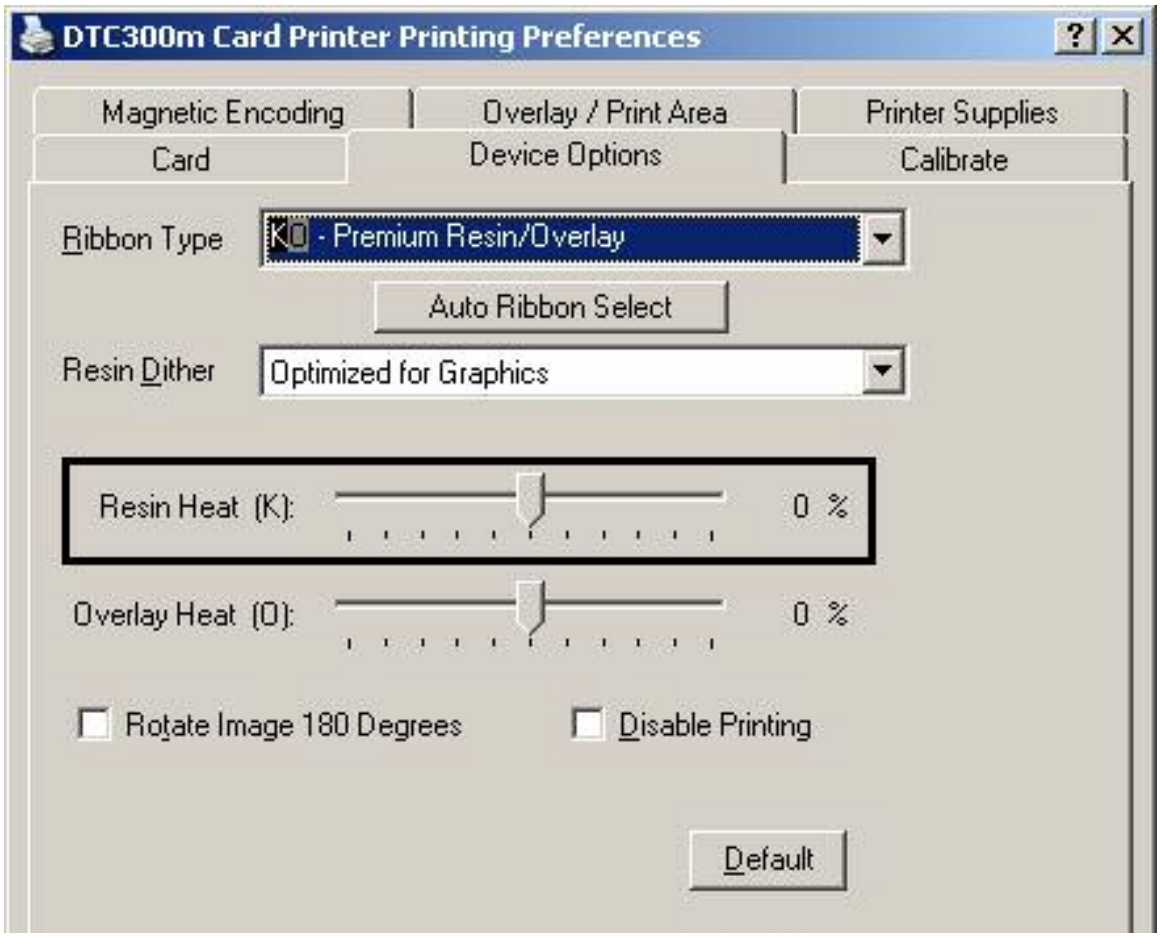
| Step | Description |
|---|---|
| 1 | Select this option to encode or re-encode cards without wasting additional time, effort, or printing supplies. (**Note:** When this option is selected, no print data will not be sent to the Printer. All encoding instructions will be sent according to how they are configured within the software.) |



## Using the Resin Heat (K) option

Use this option to control the amount of heat the Printer uses when printing with the resin black panel(s) of a full-color Ribbon or when printing with a resin-only Ribbon by adjusting the **Resin Heat** slide.

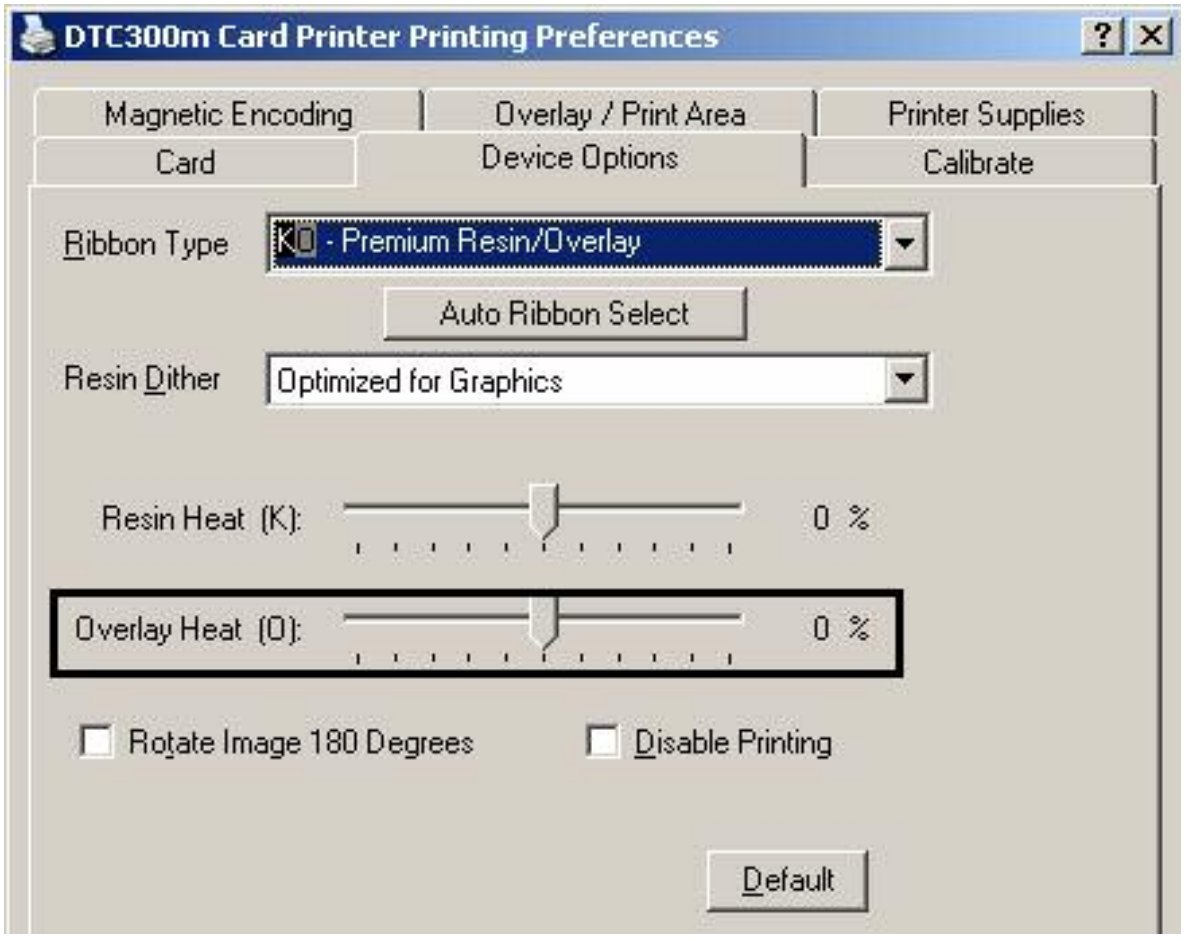
| Step | Procedure |
|---|---|
| 1 | Move the slide to the left to cause less heat to be used in the printing process, causing resin images to be lighter or less saturated.<br>**OR**<br>Move the slide to the right to cause more heat to be used.<br>(**Note:** This control can be helpful for fine-tuning the transfer of resin text and bar codes.) |



# Using the Overlay Heat (O) option

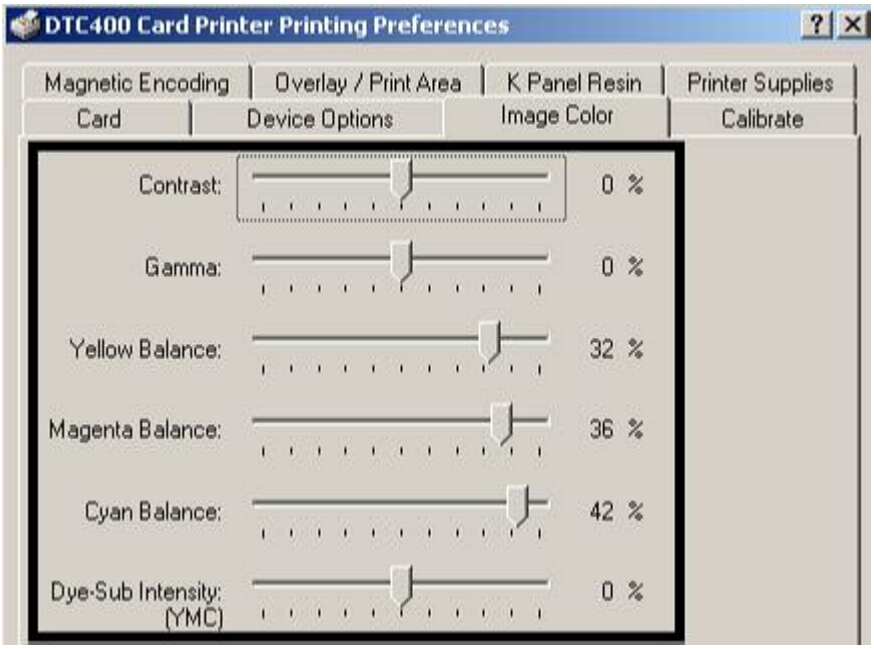
Use this option to control the amount of heat the Printer uses when printing with the overlay panel of a Ribbon.

| Step | Procedure |
|---|---|
| 1 | Move the slide to the left to cause less heat to be used in the printing process. (**Note:** Certain card types may need additional heat for better transfer of the overlay material.)<br>**OR**<br>Move the slide to the right to cause more heat to be used.<br>(**Note:** This control can be helpful for fine-tuning the transfer of overlay onto the card.) |



# Using the Image Color tab (DTC400/DTC300)

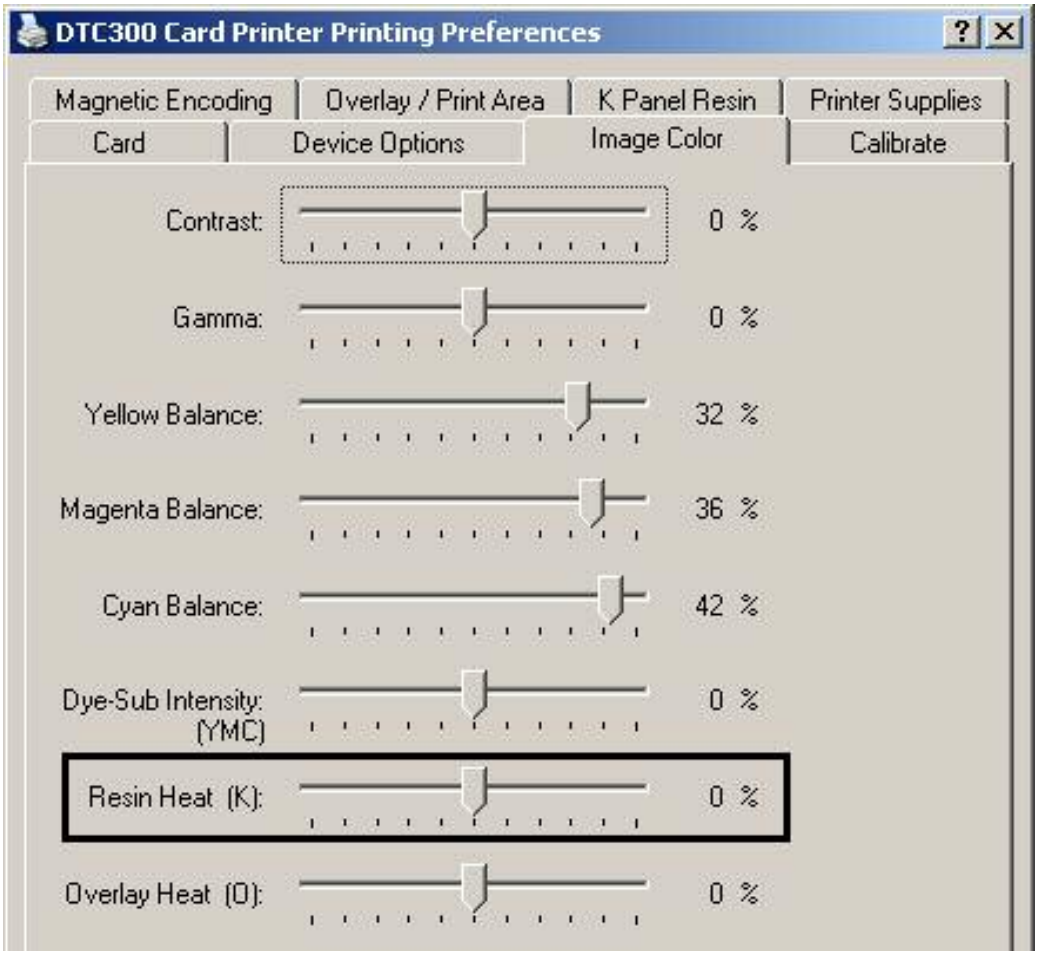
| Step | Procedure |
|---|---|
| 1 | Select the **Algebraic** color matching option and then use this option to control the **Contrast** and **Gamma** of the printed image, as well as the individual color balance of **Yellow**, **Magenta** and **Cyan**. (**Note:** In most cases, the default settings of these options will suffice.) |
| 2 | Control the overall darkness and lightness of the printed image by adjusting the **Dye-Sub Intensity** slide by clicking and dragging the slide.<br>• Move the slide to the left to cause less heat to be used in the printing process, thus generating a lighter print.<br>**OR**<br>• Move the slide to the right to cause more heat to be used, thus generating a darker print. (**Note:** This slide only affects those images printed with dye-sublimation Ribbon panels (YMC).) |



## Using the Resin Heat (K) option

Use this option to control the amount of heat the Printer uses when printing with the resin black panel(s) of a full-color Ribbon or when printing with a resin-only Ribbon by adjusting the **Resin Heat** slide.

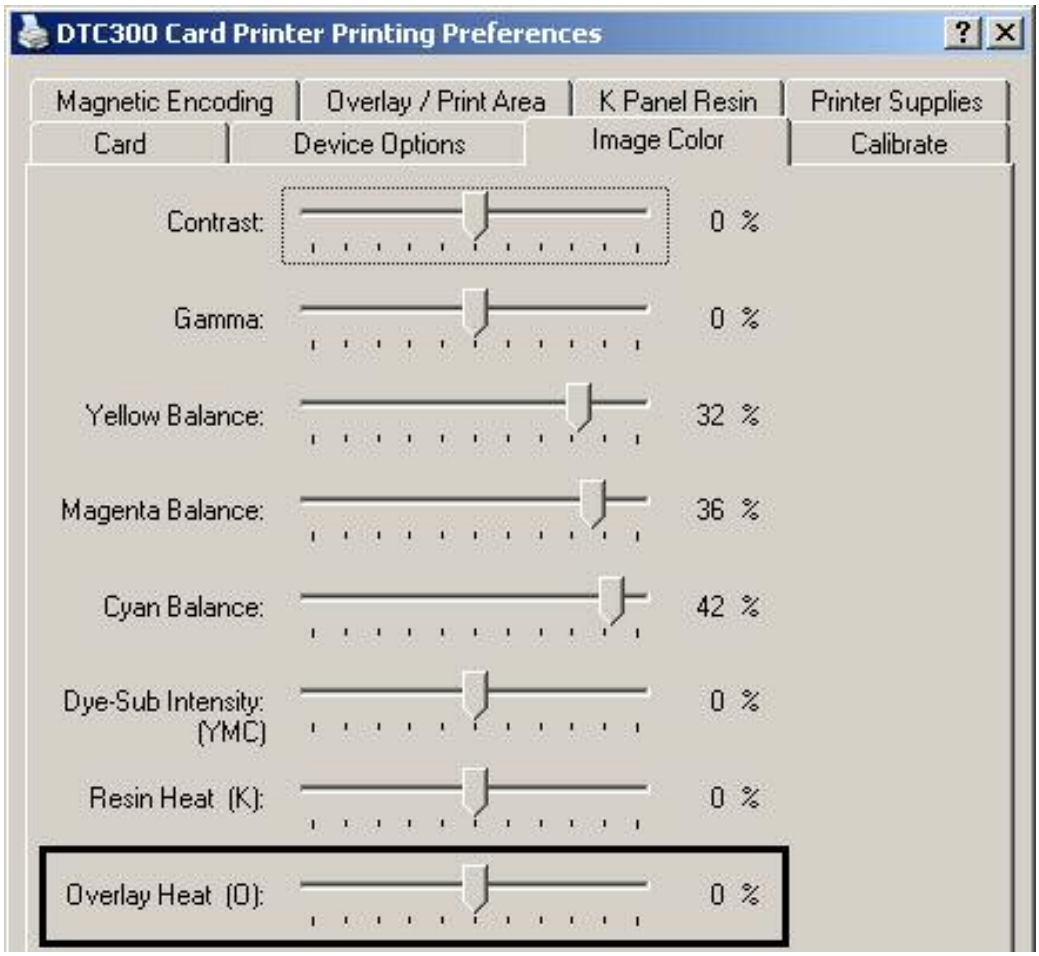
| Step | Procedure |
|---|---|
| 1 | Move the slide to the left to cause less heat to be used in the printing process, causing resin images to be lighter or less saturated.<br>**OR**<br>Move the slide to the right to (a) cause more heat to be used or (b) cause the resin image to be darker or more saturated.<br>(**Note:** This control can be helpful for fine-tuning the transfer of resin text and bar codes.) |



## Using the Overlay Heat (O) option

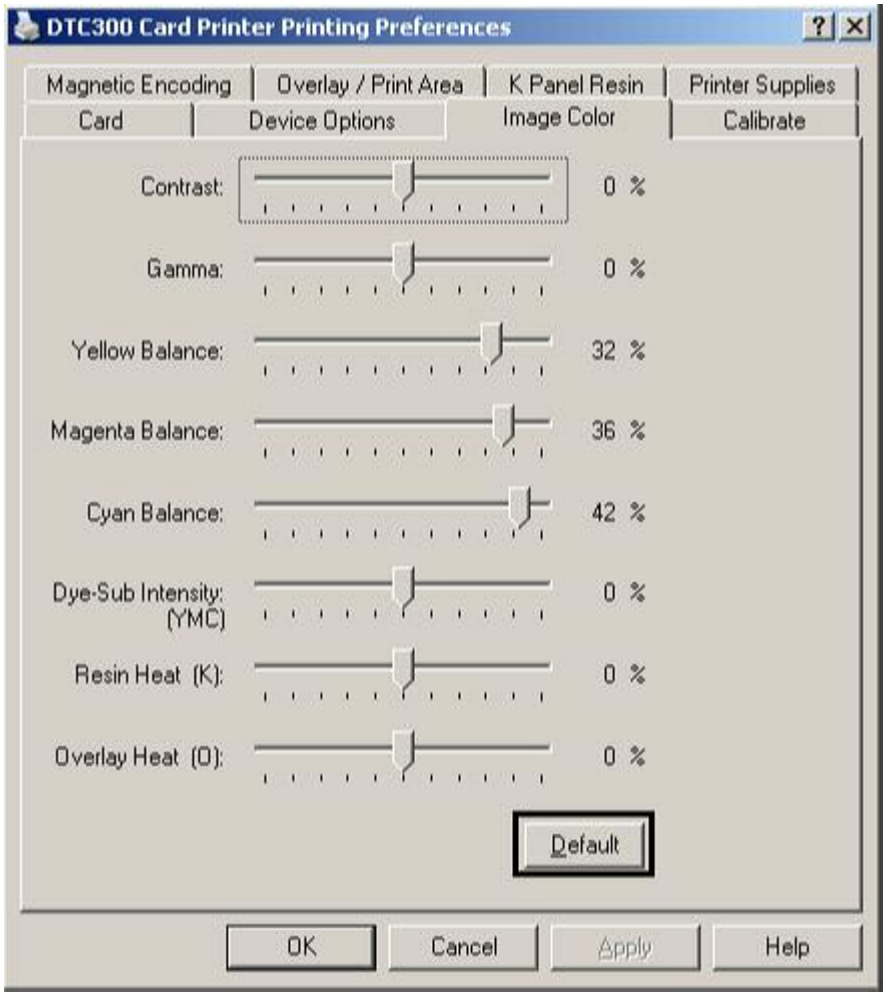
Use this option to control the amount of heat the Printer uses when printing with the overlay panel of a Ribbon.

| Step | Procedure |
|---|---|
| 1 | Move the slide to the left to cause less heat to be used in the printing process. (**Note:** Certain card types may need additional heat for better transfer of the overlay material.)<br>**OR**<br>Move the slide to the right to cause more heat to be used.<br>(**Note:** This control can be helpful for fine-tuning the transfer of overlay onto the card.) |



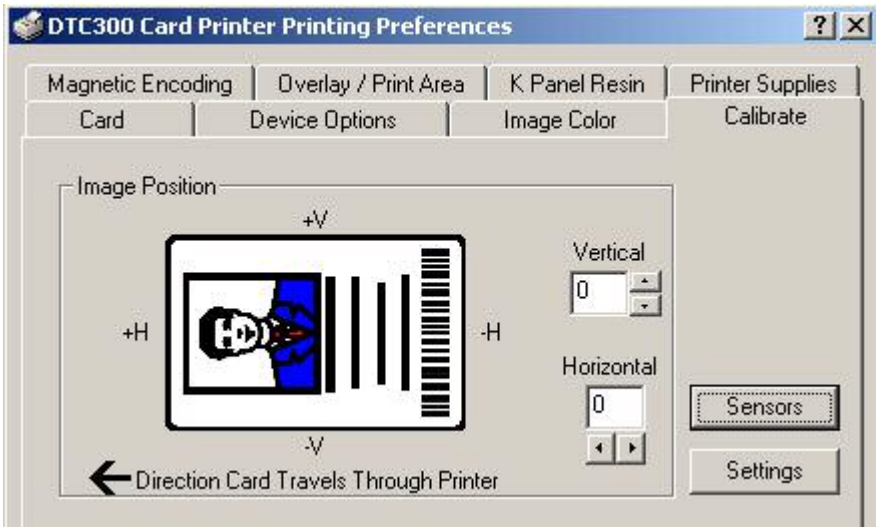
## Using the Color Matching option and Default button

| Step | Procedure |
|---|---|
| 1 | To return all options to their factory settings, click on the **Default** button. |



# Using the Calibrate tab

Use the Calibrate tab to (a) control the position of the printable area in relation to the card, (b) calibrate Sensors and (c) adjust the internal Printer settings that are customized for every Printer and saved directly within the Printer's memory.

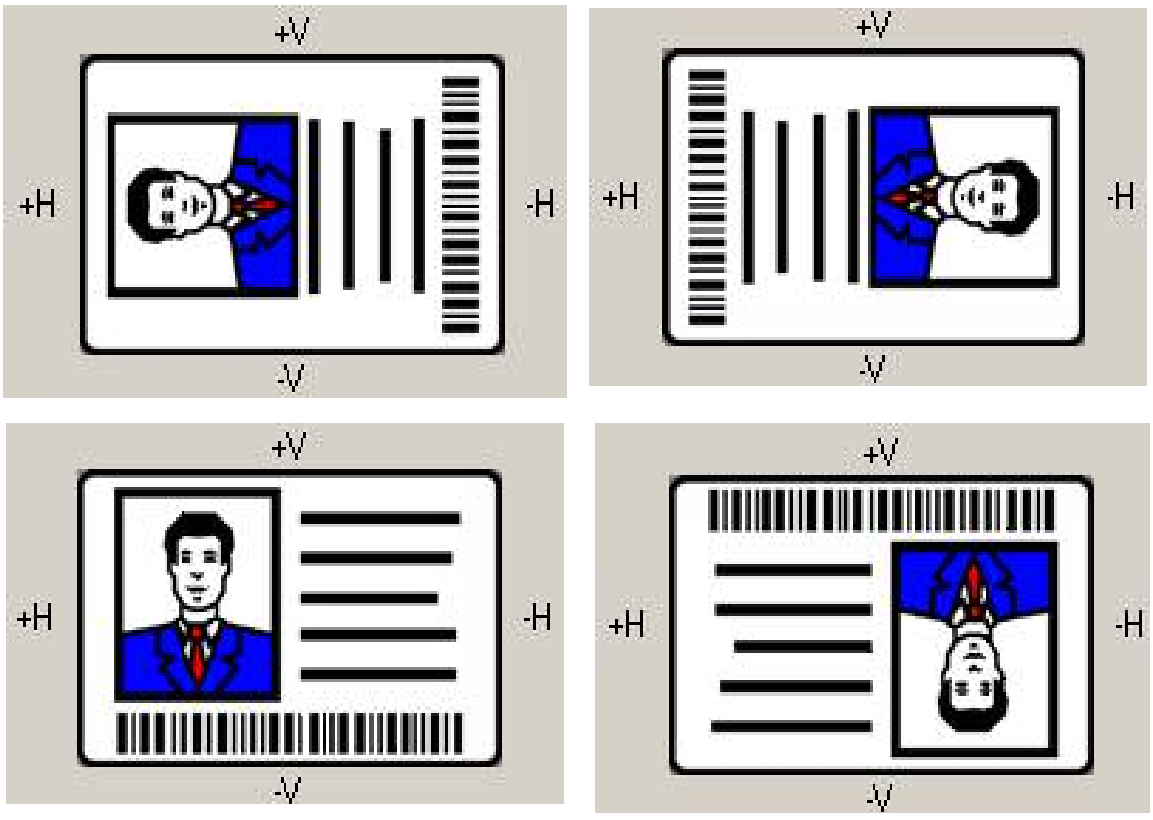


## Using the Image Position Controls

Use the **Image Position** controls to adjust the position of the overall print area to be precisely centered on a card.

| Step | Procedure |
|---|---|
| 1 | Click on the **Vertical** and **Horizontal** adjustment arrows to adjust the Image Position values.<br>• When adjusting these values, keep in mind that cards always remain in the same position while moving through the Printer, regardless of image orientation.<br>• To illustrate this, the card illustration shown in the Image Position box will flip and rotate according to the **Portrait**, **Landscape**, or **Rotate 180 Degrees** selection.<br>• The outline around the illustration will always remain in the same **Landscape** orientation. |

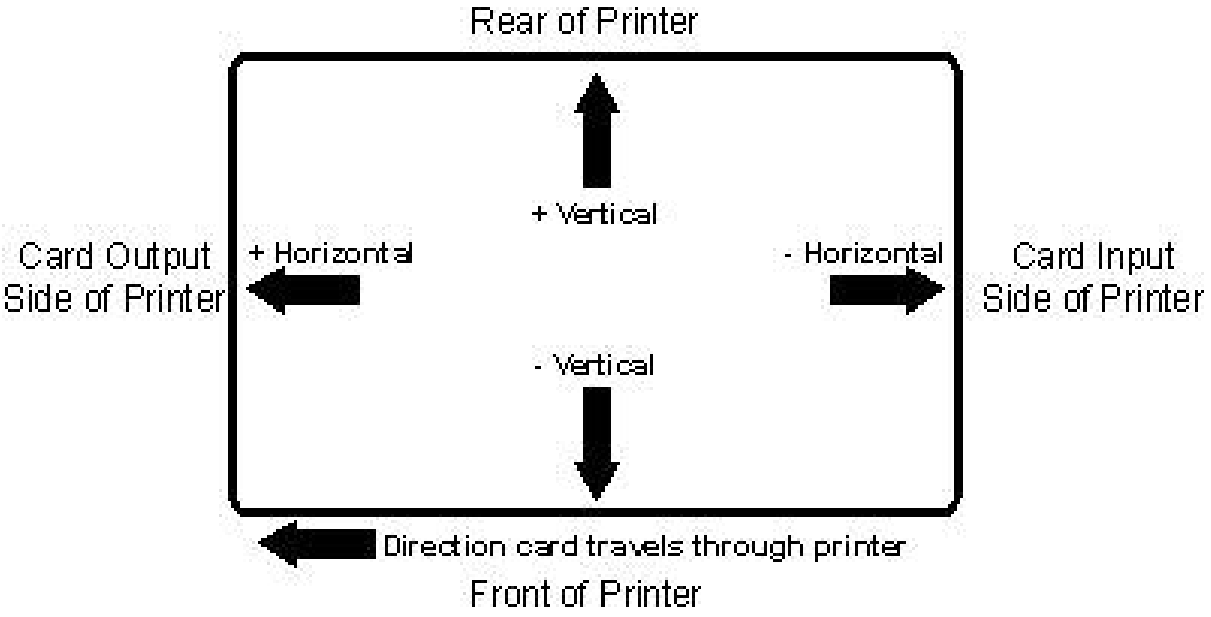
*Continued on the next page*



## Using Image Position controls (continued)

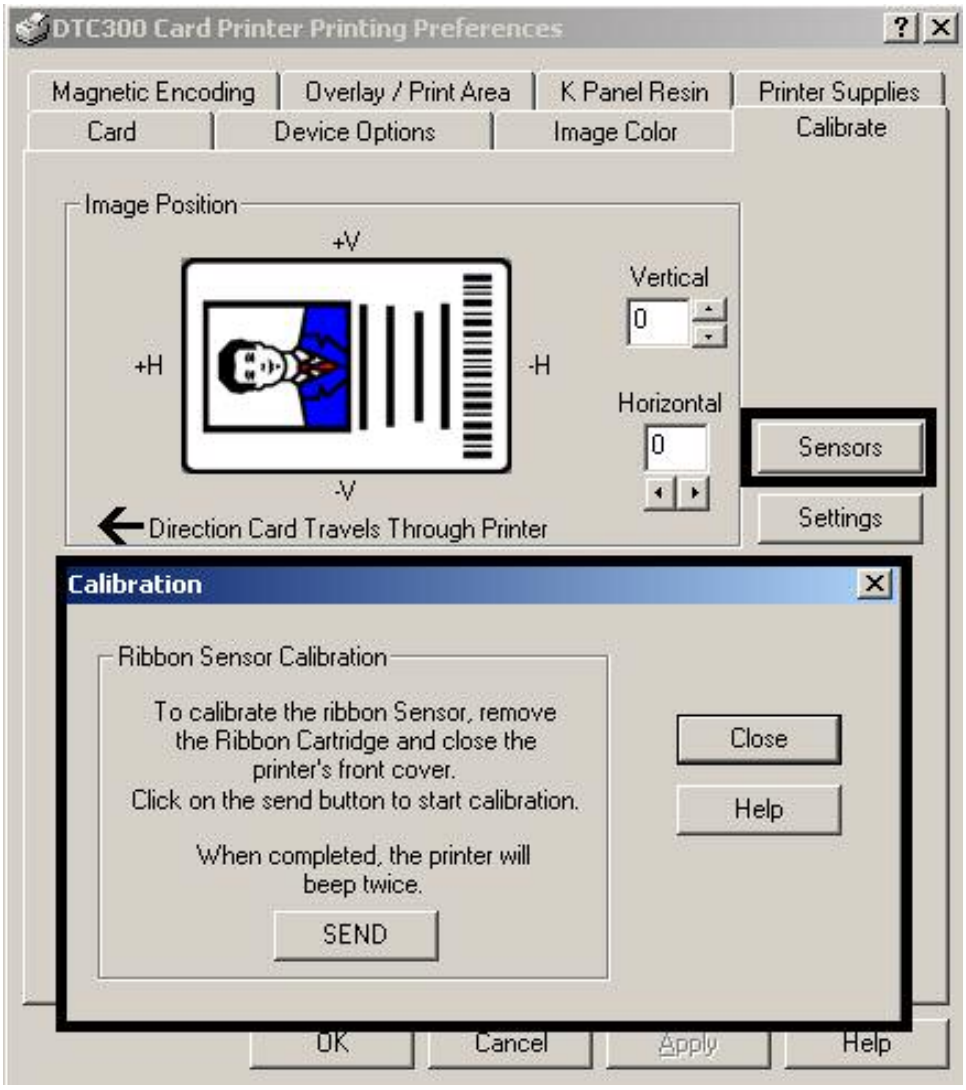
Review the Image Position diagram, which displays how the printed image will move in relation to the fixed card position as positive and negative image placement values are entered.

| Step | Procedure |
|---|---|
| 2 | Use the **Vertical** adjustment to move the image:<br>• Move toward the rear of the Printer if a positive number is entered.<br>• Move toward the front of the Printer if a negative number is entered.<br>**OR**<br>Use the **Horizontal** adjustment to move the image:<br>• Move toward the card output side of the Printer if a positive number is entered.<br>• Move toward the card input side of the Printer if a negative number is entered.<br>(**Note No.1:** The maximum value for the **Vertical** and **Horizontal** adjustments is ±100 pixels (10 pixels = about .03"/. 8mm).)<br>(**Note No.2:** The **Vertical** and **Horizontal** adjustment arrows point to within the Image Position window, which represents the direction that the printed image moves.) |



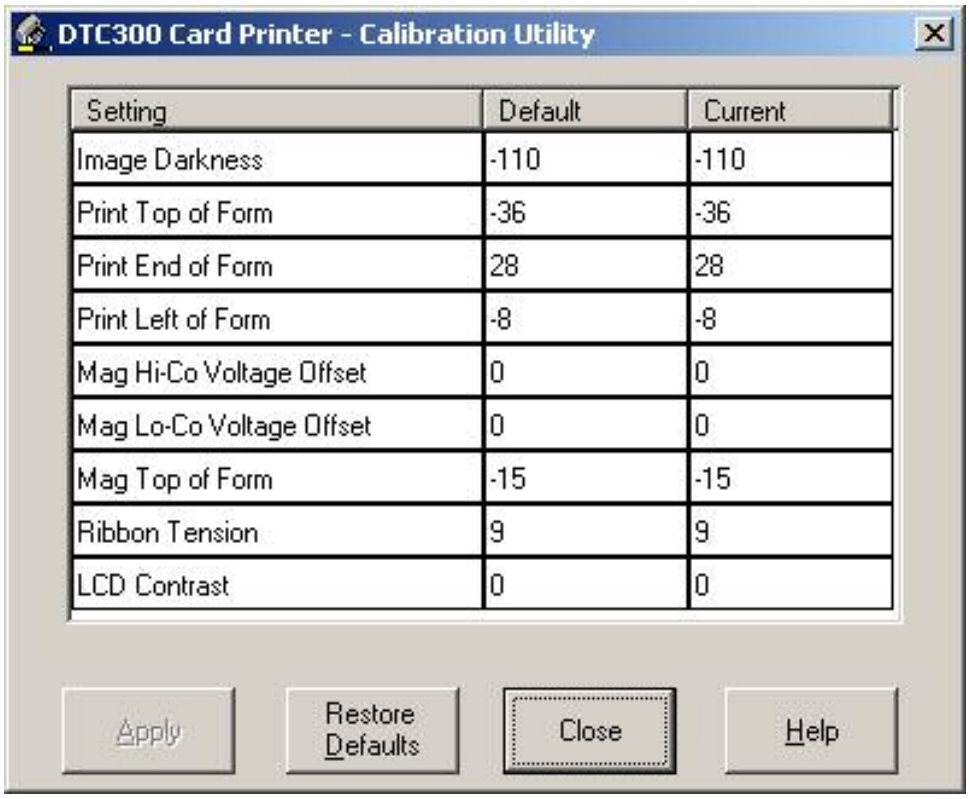
## Using the Sensors button

Use the **Sensors** button to bring up a separate dialog box for calibrating the Printer's Ribbon Sensor (see instructions in the Calibration window below).



## Using the Settings button

Use the **Settings** button (see above) to bring up a separate dialog box for adjusting the internal Printer settings, which are customized for every Printer at the factory and saved directly within the Printer's memory. (**Note:** You can select the Restore Defaults to restore the internal default settings.) See the Using the Settings dialog box procedure.

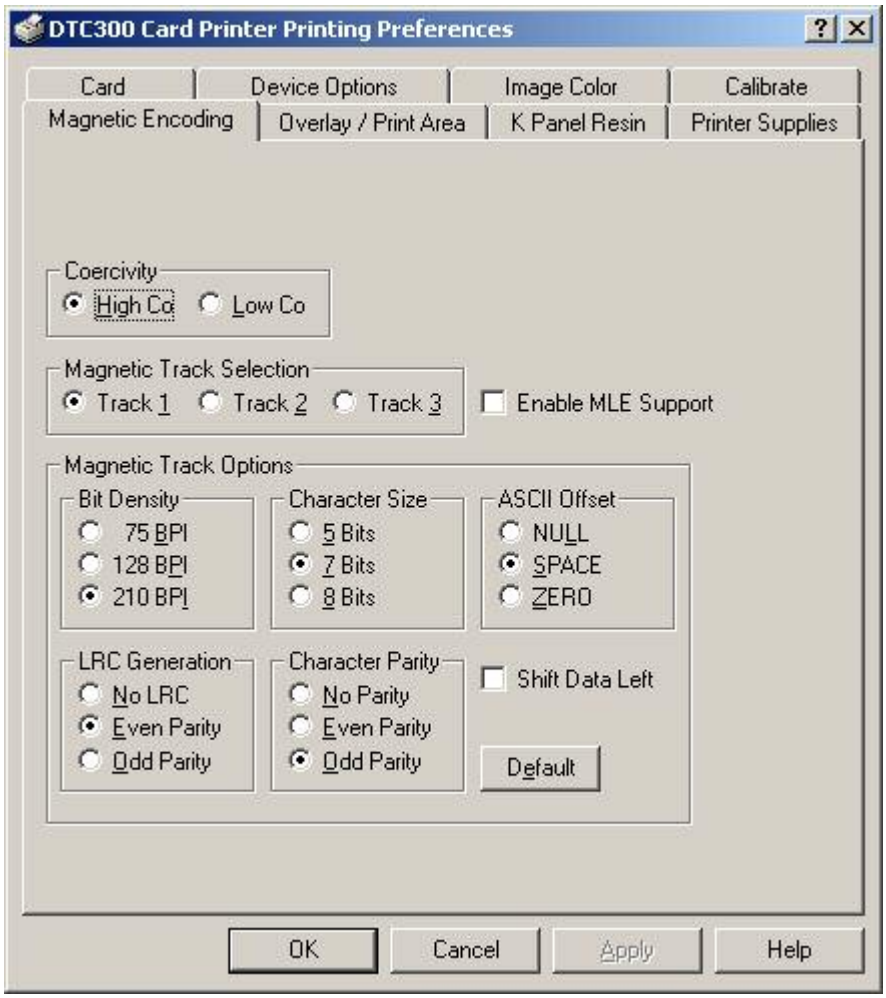


# Using the Magnetic Encoding tab

Use this option only if the Printer has an optional Magnetic Stripe Encoding Module installed. The following describes these options and the Printer's magnetic encoding process.

- The Card Printer comes with either a high-coercivity factory-installed Magnetic Stripe Encoding Module or a low-coercivity module.
- The Printer cannot encode both types of Magnetic Stripes interchangeably within the same Printer.

| Step | Procedure |
|---|---|
| 1 | Select the Magnetic Encoding tab to display options for controlling the Magnetic Stripe encoding process. |

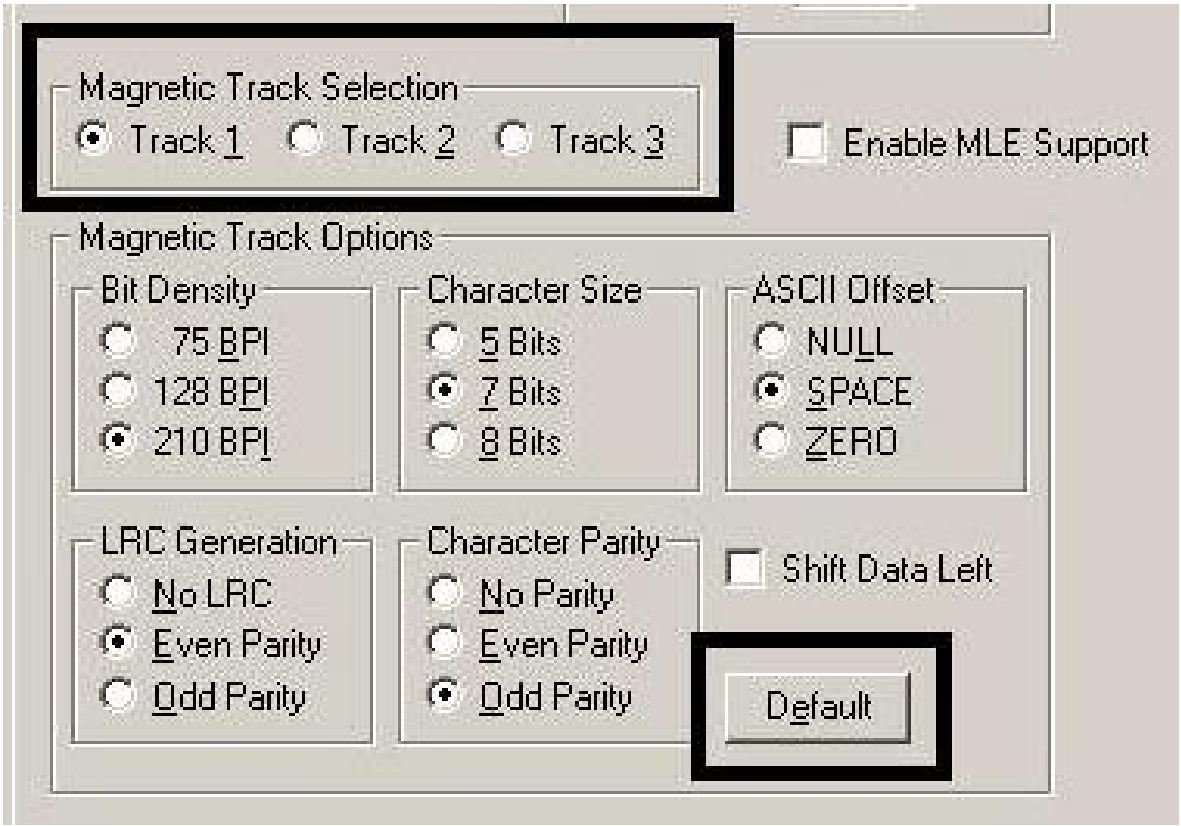


## Using the Magnetic Track Selection radio buttons

Use the **Magnetic Track Selection** option to specify which track to configure through the Magnetic Track Options if the application requires customization of the standard ISO encoding process. (**Note:** Although the default ISO Magnetic Track Options should be correct for almost all applications, these options can be customized if the application requires it.)

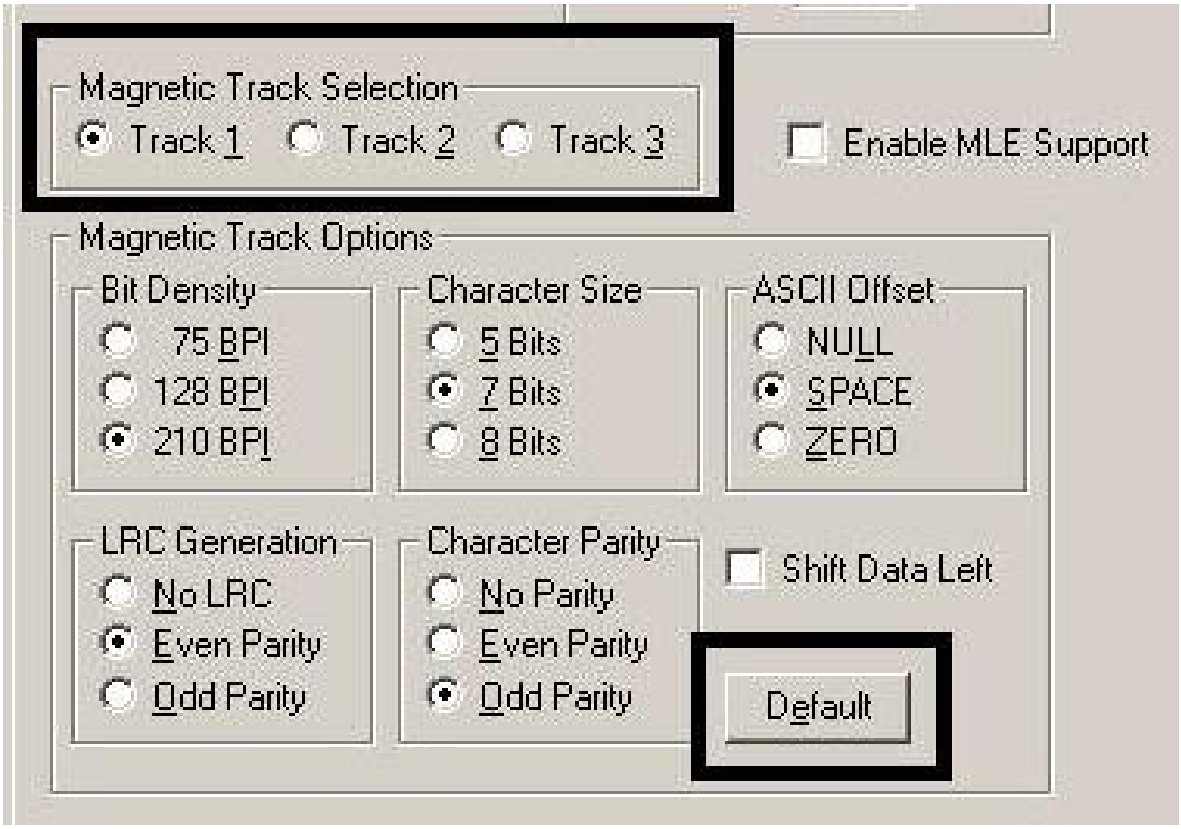
| Step | Procedure |
|---|---|
| 1 | Select a Track selection to:<br>a. Change all options separately for each of the three individual tracks.<br>b. Select the **Default** button for each of the separate tracks to set these options back to the ISO Standard settings (once they have been changed). (**Important:** Please refer to the following for a description of all Magnetic Track Options.**)** |

*Continued on the next page*



## Using the Magnetic Track Selection radio buttons (continued)

| Step | Procedure |
|---|---|
| 2 | Use the **Magnetic Track Selections** to configure the way in which each of the three magnetic tracks will encode.<br>(**Note No.1:** They do not designate which tracks the Printer will encode (e.g., to encode only Track 2). This must be done through the specific software program.)<br>(**Note No.2:** Although the Printer Driver will remember the settings specified for each of the three tracks, the Printer Driver will always default to displaying the options for Track 1 whenever the Printer Driver setup screen is first opened.) |



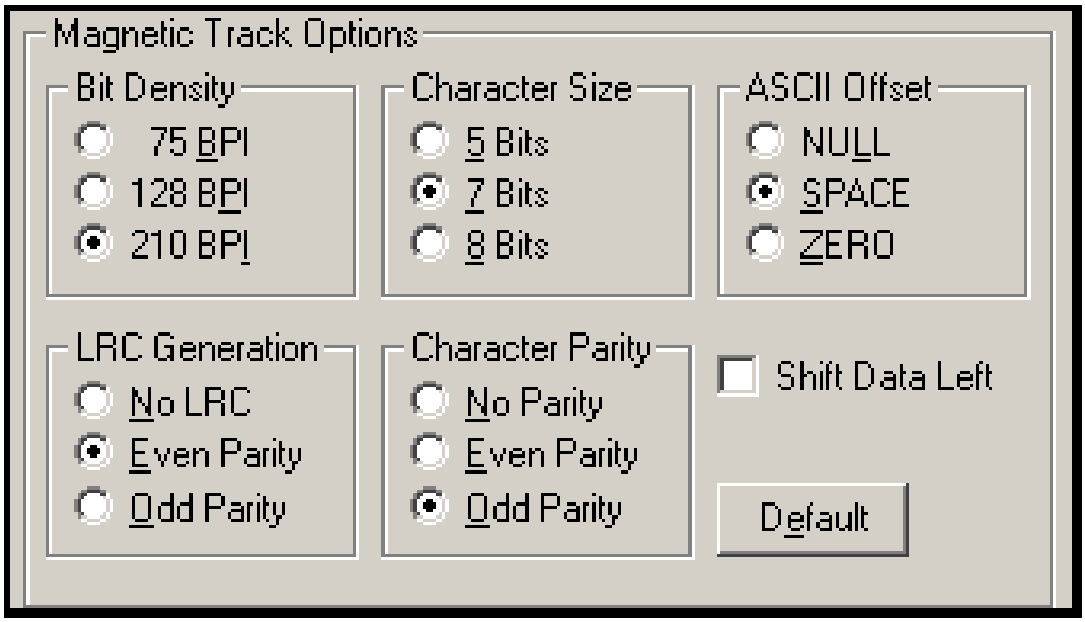
## Using the Magnetic Track Options radio buttons

Use the **Magnetic Track** options for these purposes:

- Customize the ISO encoded data format for each of the Magnetic Stripe's three tracks.
- Customize each track independently of the other two.
- Specify which of the three tracks to customize by selecting one of the three track options.

(**Note No.1:** After making the required selection, the Magnetic Track Options box displays the current set of customization options for the selected track.)

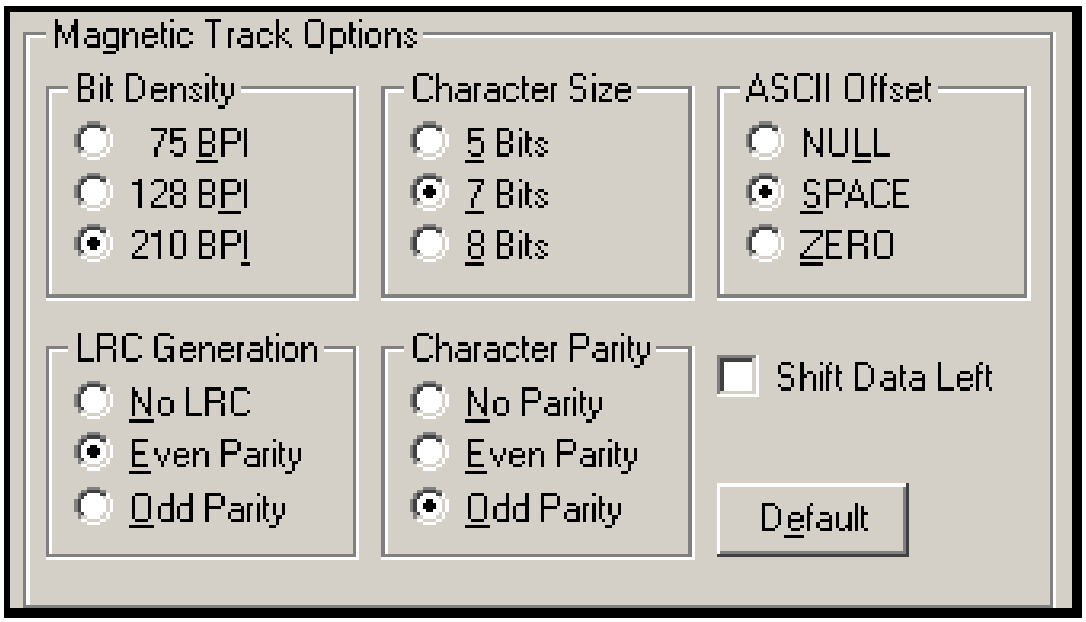
(**Note No.2:** For most applications, the default settings for these options do not need to be changed.)



## Using the Bit Density radio buttons

Use this option to customize the Bit Recording Density (Bits per Inch) used to encode the magnetic data on the currently selected track.

| Step | Procedure |
|---|---|
| 1 | Select 75 BPI to change the bits per inch to 75 BPI.<br>**OR**<br>Select 128 BPI to change the bits per inch to 128 BPI.<br>**OR**<br>Select 210 BPI to change the bits per inch to 210 BPI. |



## Using the Character Size radio buttons

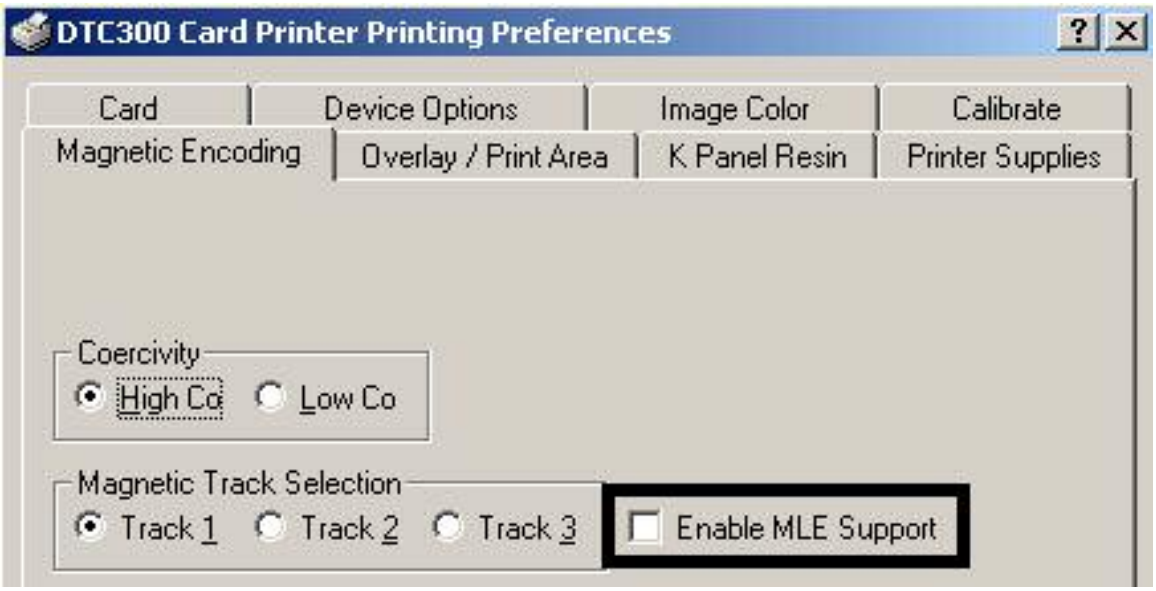
Use this option to customize the Character Data Size (Bits per Character) used to encode the magnetic data on the currently selected track. (**Note:** This character size includes the parity bit (if enabled).)

| Step | Procedure |
|---|---|
| 1 | Select 5 Bits to change the bits per character to 5 BPC.<br>**OR**<br>Select 7 Bits to change the bits per character to 7 BPC.<br>**OR**<br>Select 8 Bits to change the bits per character to 8 BPC. |

## Reviewing the Enable MLE Support checkbox

Multi-Language Extension (MLE) support in Windows XP can cause text strings to be broken up into fragments. This fragmentation of the text string prevents magnetic encoding. (**Note:** This option may help correct encoding problems in all operating systems.)

| Step | Procedure |
|---|---|
| 1 | Check this box to allow the Driver to process the fragmented text. |



## Using the ASCII Offset radio buttons

Use this option to customize the Character ASCII Offset used to encode the magnetic data on the currently selected track. (**Note:** This character offset value is subtracted from the ASCII value of each Magnetic Stripe data character prior to encoding on the track.)

| Step | Procedure |
|---|---|
| 1 | Select NULL to change the ASCII Offset to NULL.<br>**OR**<br>Select SPACE to change the ASCII Offset to SPACE.<br>**OR**<br>Select ZERO to change the ASCII Offset to ZERO. |

## Using the LRC Generation radio buttons

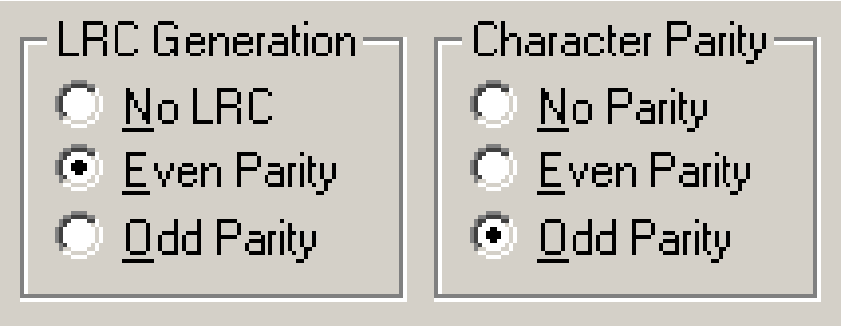
Use this option to customize the LRC Generation Mode (used to encode the magnetic data on the currently selected track).

| Step | Procedure |
|---|---|
| 1 | Select NO LRC to change the LRC Generation to none.<br>**OR**<br>Select Even Parity to change the LRC Generation to Even Parity.<br>**OR**<br>Select Odd Parity to change the LRC Generation to Odd Parity. |

## Using the Character Parity radio buttons

Use this option to customize the Character Data Parity (used to encode the magnetic data on the currently selected track).

| Step | Procedure |
|---|---|
| 1 | Select No Parity to change the Character Parity to none.<br>**OR**<br>Select Even Parity to change the Character Parity to Even Parity.<br>**OR**<br>Select Odd Parity to change the Character Parity to Odd Parity |



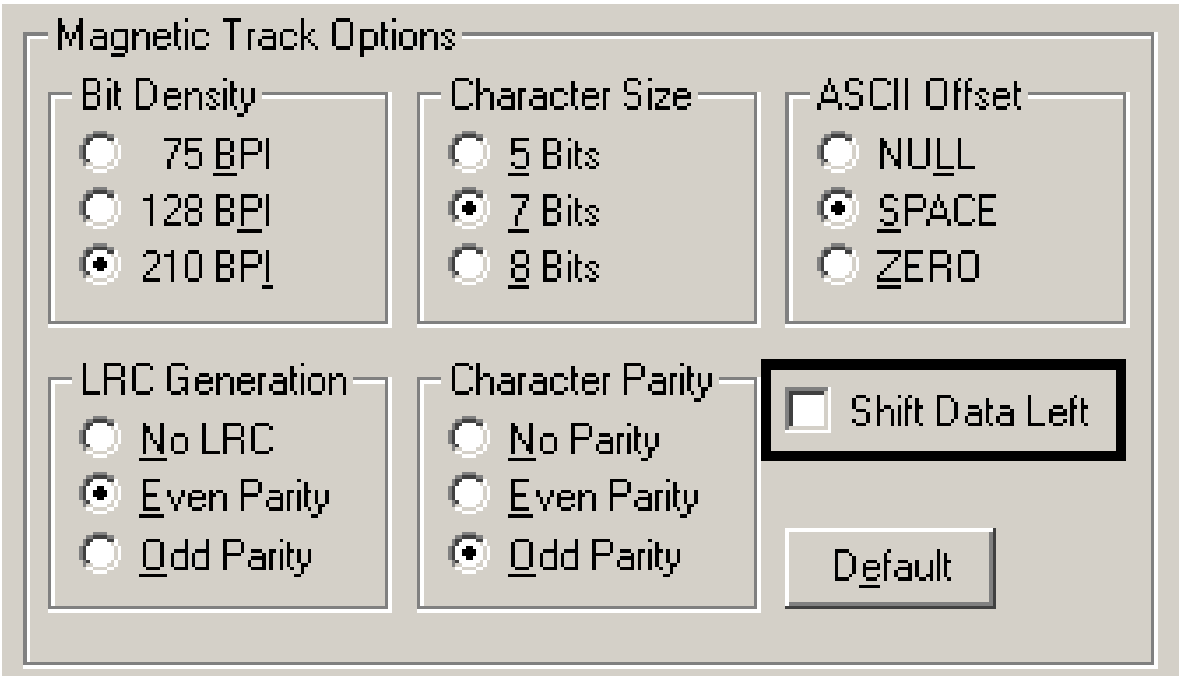
## Using the Shift Data Left checkbox

Use this option to shift the recorded magnetic data to the left-hand side of the card's Magnetic Stripe.

**OR**

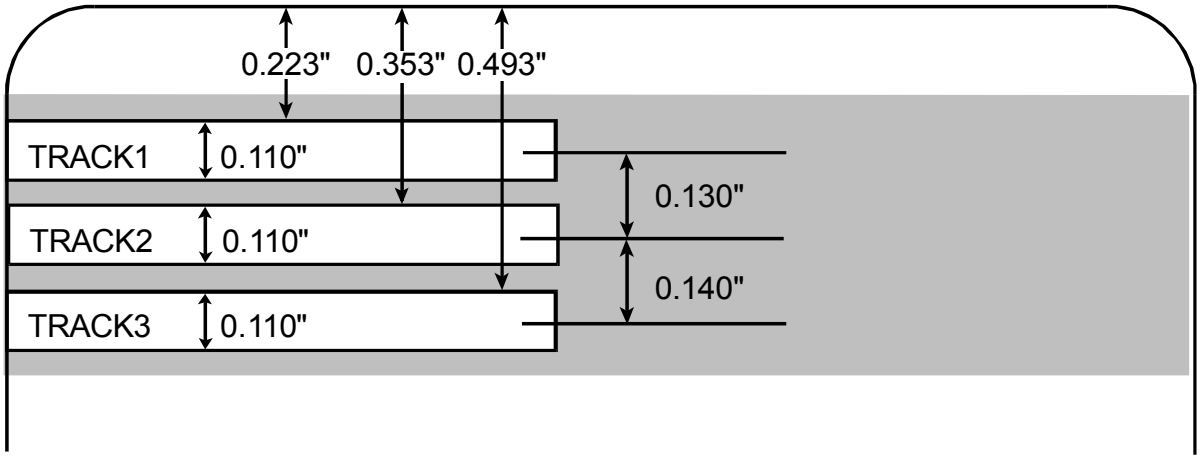
Use this option for situations that require cards to be readable with insert type readers that may be unable to read the right-hand side of the card.

| Step | Procedure |
|---|---|
| 1 | Select the **Shift Data Left** checkbox option to apply to all tracks. |



## Reviewing the ISO Track Locations

Review the magnetic encoding module, which encodes onto tracks in accordance with an ISO 7811-2 Magnetic Stripe. (**Note:** Refer to the diagram (below) for track locations.)



## Sending the Track Information

Magnetic track data is sent in the form of text strings from the application software to the Printer Driver along with all of the other printable objects within the card design.

- **Magnetic Track Data added:** In order for the Printer Driver to differentiate between magnetic track data and the rest of the printable objects, the magnetic track data strings must be uniquely tagged or added.
- **Specific Characters added:** In other words, specific characters must be added to the magnetic track data in order for the Printer Driver to know which data is to be encoded, which tracks to encode, when the track data stops and starts and so forth.
- **Manually or automatically added:** In some cases, these specific characters are automatically added to the string of track data by customized ID software applications. In most cases, however, the User must manually add these characters to the string of magnetic track data.

## Entering the Track Information

(**Note:** If these characters are not added to the track data, the text intended for the magnetic track will most likely appear as printed text on the card.)

| Step | Procedure |
|---|---|
| 1 | To avoid this symptom, track information must be entered as follows.<br>When entering track data, the "~" character is entered first, followed by the desired track number (1, 2, or 3) used to encode the data.<br>• The data to be encoded should then follow. (**Note:** The first character of this data string must be the track's specific Start Sentinel (SS) and the last character must be the specific End Sentinel (ES).)<br>• The characters or data in between the SS and ES can include all of the valid characters specific to each track. (**Note:** The number of these characters is limited by each track's maximum character capacity.)<br>  **Caution:** When segmenting track data, strictly use the appropriate Field Separator (FS). |

## Reviewing Tracks 1, 2 and 3 (in table format)

Review this table, which displays the SS, ES, FS and the valid characters defined for each track.

| | Start Sentinel | End Sentinel | Field Separator | Valid Characters | Maximum Number of Characters |
|---|---|---|---|---|---|
| **Track 1** | % | ? | ^ | ASCII 32-95<br>(See the table below.) | 78 |
| **Track 2** | ; | ? | = | ASCII 48-63<br>(See the table below.) | 39 |
| **Track 3** | ; | ? | = | ASCII 48-63<br>(See the table below.) | 106 |

## Reviewing the Track Data Note

Review this Note, which displays how track the data should be entered for Tracks 1, 2 and 3:

| Track | Data Entry |
|---|---|
| Sending data to Track 1 | **~1%JULIE ANDERSON^623-85-1253?** |
| Sending data to Track 2 | **~2;0123456789?** |
| Sending data to Track 3 | **~3;0123456789?** |

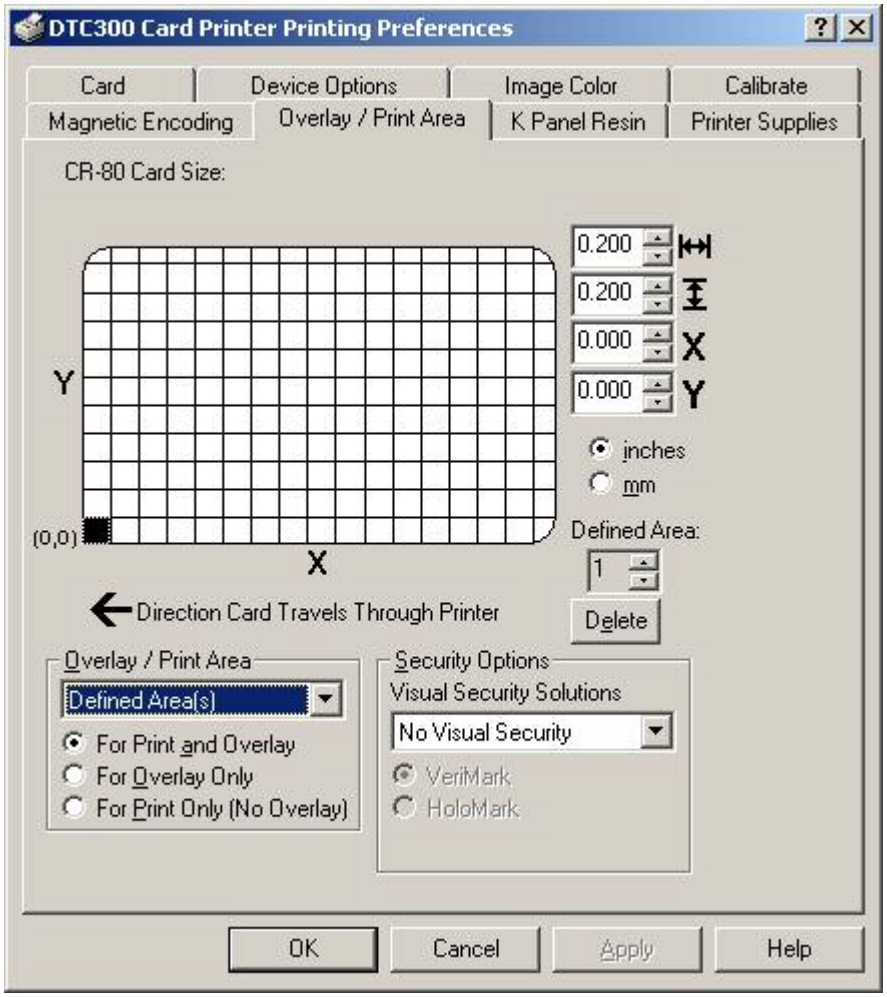
## Reviewing the ASCII Code and Character Table

| ASCII Code | Character | ASCII Code | Character | ASCII Code | Character |
|---|---|---|---|---|---|
| 32 | space | 56 | 8 | 80 | P |
| 33 | ! | 57 | 9 | 81 | Q |
| 34 | " | 58 | : | 82 | R |
| 35 | No. | 59 | ; | 83 | S |
| 36 | $ | 60 | < | 84 | T |
| 37 | % | 61 | = | 85 | U |
| 38 | & | 62 | > | 86 | V |
| 39 | ' | 63 | ? | 87 | W |
| 40 | ( | 64 | @ | 88 | X |
| 41 | ) | 65 | A | 89 | Y |
| 42 | * | 66 | B | 90 | Z |
| 43 | + | 67 | C | 91 | [ |
| 44 | ' | 68 | D | 92 | \ |
| 45 | - | 69 | E | 93 | ] |
| 46 | . | 70 | F | 94 | ^ |
| 47 | / | 71 | G | 95 | _ |
| 48 | 0 | 72 | H | | |
| 49 | 1 | 73 | I | | |
| 50 | 2 | 74 | J | | |
| 51 | 3 | 75 | K | | |
| 52 | 4 | 76 | L | | |
| 53 | 5 | 77 | M | | |
| 54 | 6 | 78 | N | | |
| 55 | 7 | 79 | O | | |

# Using the Overlay / Print Area tab

Use this option to control where the Overlay (O) Panel and/or the print area appear on a card. (**Note:** This option is helpful if, for example, you would like to omit or block out the overlay or printing around a card's smart chip or Magnetic Stripe.)

- By default, this option is set to print and overlay the entire card. To customize the overlay and/or print area, select one of the options listed under "Overlay / Print Area."

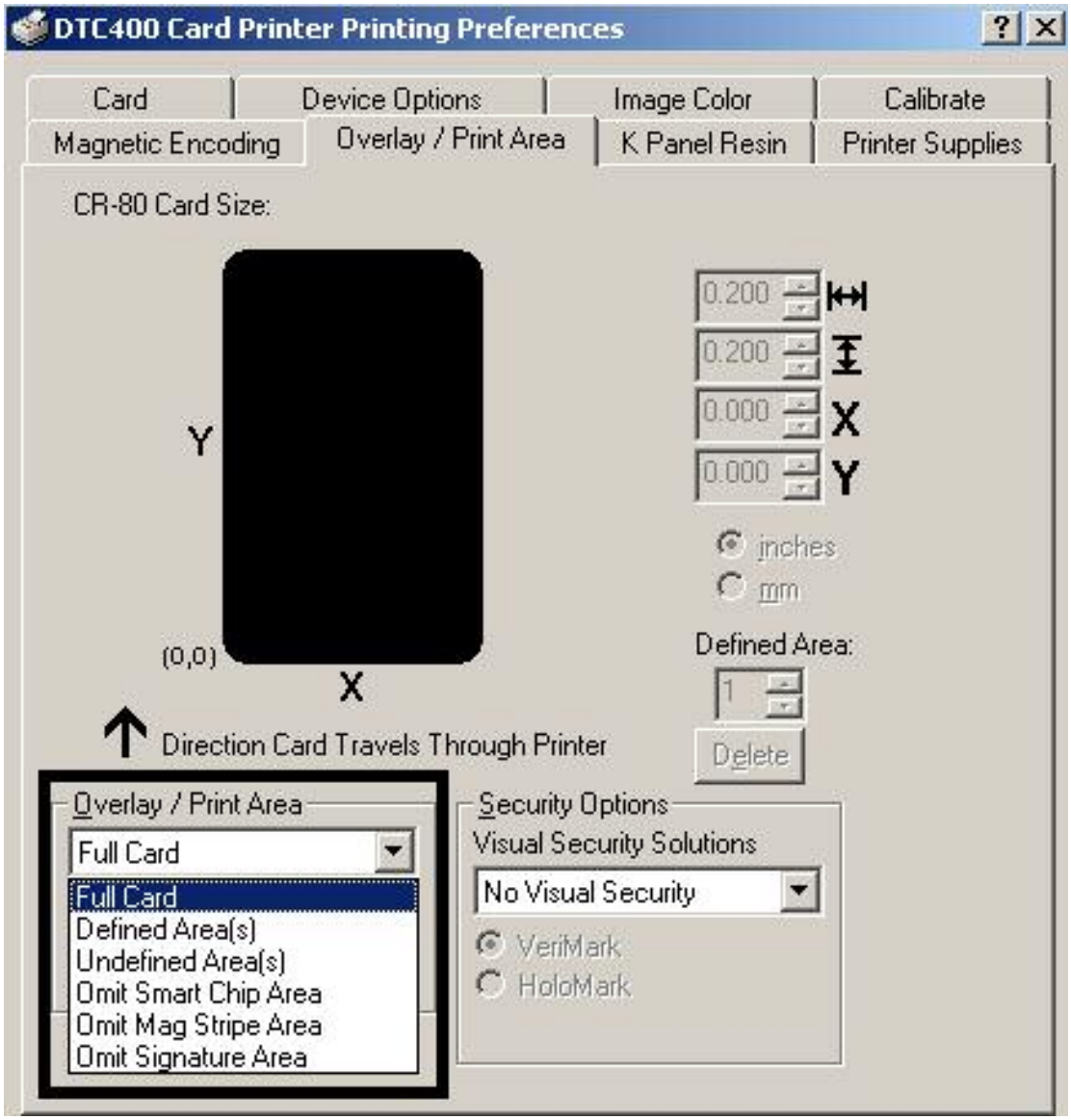


## Using the Overlay / Print Area dropdown menu

| Step | Procedure |
|---|---|
| 1 | Select the **Full Card** option for the Printer to overlay and/or print the entire card.<br>**OR**<br>Select the **Defined Area(s)** option for the Printer to overlay and/or print only in the selected and defined area or areas.<br>**OR**<br>Select the **Undefined Area(s)** option for the Printer to overlay and/or print only in the space outside the selected and defined area.<br>**OR**<br>Select the **Omit Smart Chip Area** option for the Printer to overlay and/or print only in the space outside the standard location of a smart chip.<br>**OR**<br>Select the **Omit Magnetic Stripe Area** option for the Printer to overlay and/or print only in the space outside the standard location of an ISO Magnetic Stripe.<br>**OR**<br>Select the **Omit Signature Area** option for the Printer to overlay and/or print only in the space outside the standard location of a signature panel.<br>(**Note:** In the card grid, black indicates the area in which the overlay and/or printing will be applied.) |

*Continued on the next page*

**Using the Overlay / Print Area dropdown menu (continued)**



## Using the Overlay / Print Area

Use these **Overlay / Print Area** options to control both the print and overlay together or control each individually.

| Step | Procedure |
|---|---|
| 1 | Select **For Print and Overlay** for the defined area to apply to both the printing and overlay process.<br>**OR**<br>Select **For Overlay Only** for the defined area to apply only to the overlay process. (**Note:** In this mode, printing will still be allowed over the entire card and only the overlay will be affected.)<br>**OR**<br>Select **For Print Only (No Overlay)** for the defined area to apply only to the print process. (**Important:** In this mode, the overlay is completely disabled so it will not be applied.)<br>  **Caution:** An overlay or an overlaminate must protect dye-sublimation printing or it will quickly begin to wear or fade. |

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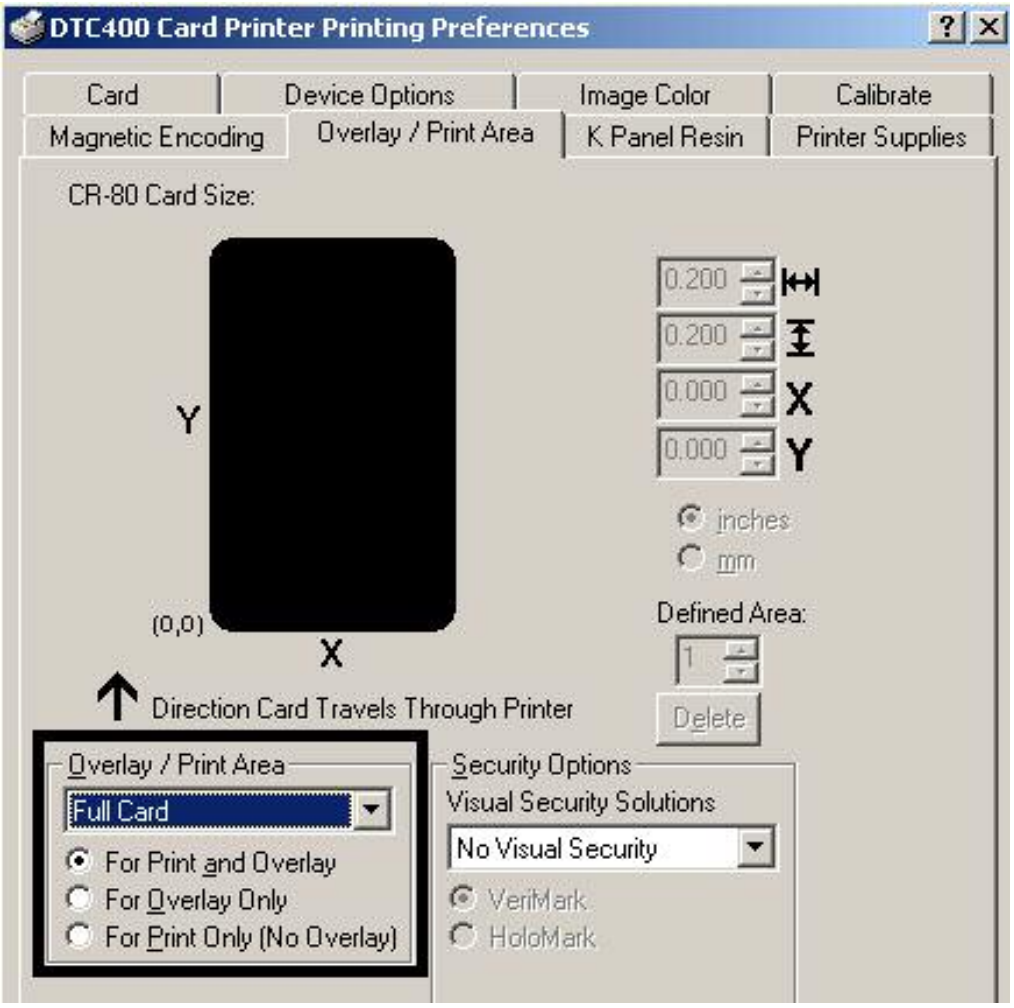
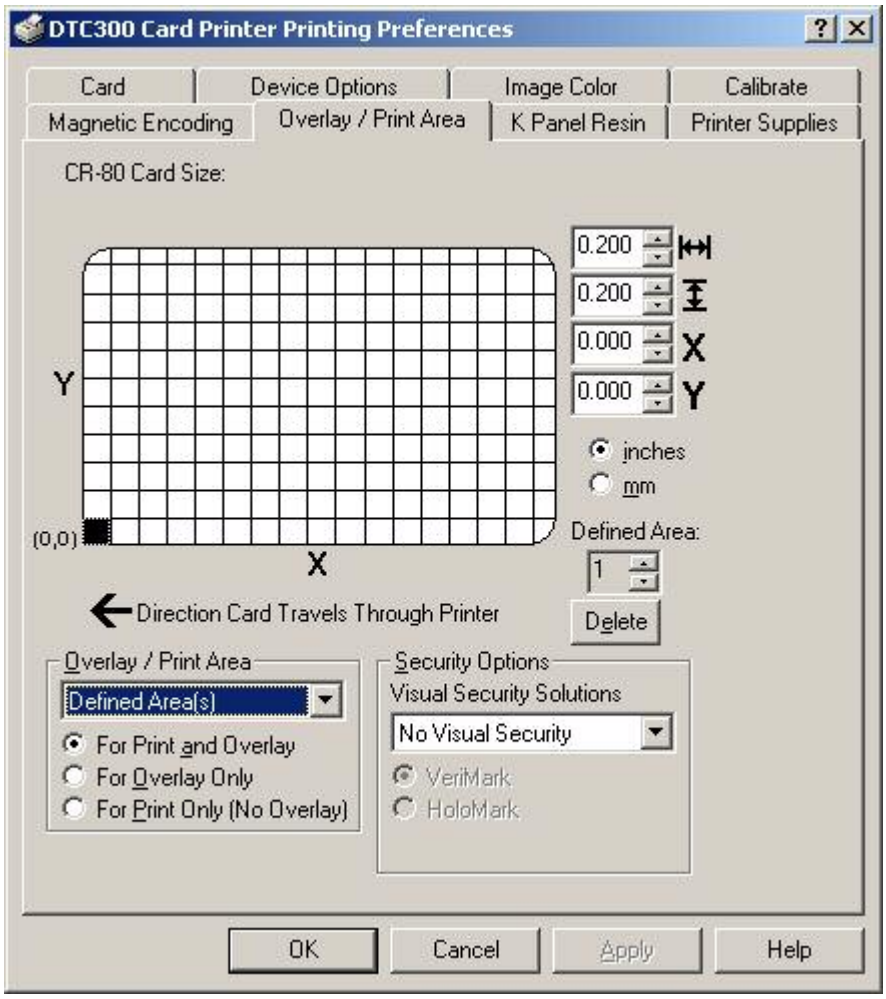
## Using the Overlay / Print Area (continued)



## Using the Defined Area Option

| Step | Procedure |
|---|---|
| 1 | Select the **Defined Area(s)** option to activate the card grid in the upper half of the window. It is through this card grid that up to five (5) Defined Areas can be assigned. |



## Using the Defined Area Option (continued)

| Step | Procedure |
|---|---|
| 2 | When the card grid is first activated, a small black square will appear at its default size of .2" x .2" / 5mm x 5mm and at its default location in the lower left-hand corner (0, 0). This square represents the first defined area.<br>• Determine the area of the card needed to define for a signature panel with a different size and location than the Driver's standard **Omit Signature Area** setting. (**Note:** This area is indicated by the dashed outline.)<br>• Determine the area size by actually printing a card and looking at it in the same orientation as when it exits the Printer. |
| 3 | Measure the total size of the desired area and enter those dimensions into the dimension boxes. (**Note:** The minimum size an area is .2" x .2" / 5mm x 5mm.) |

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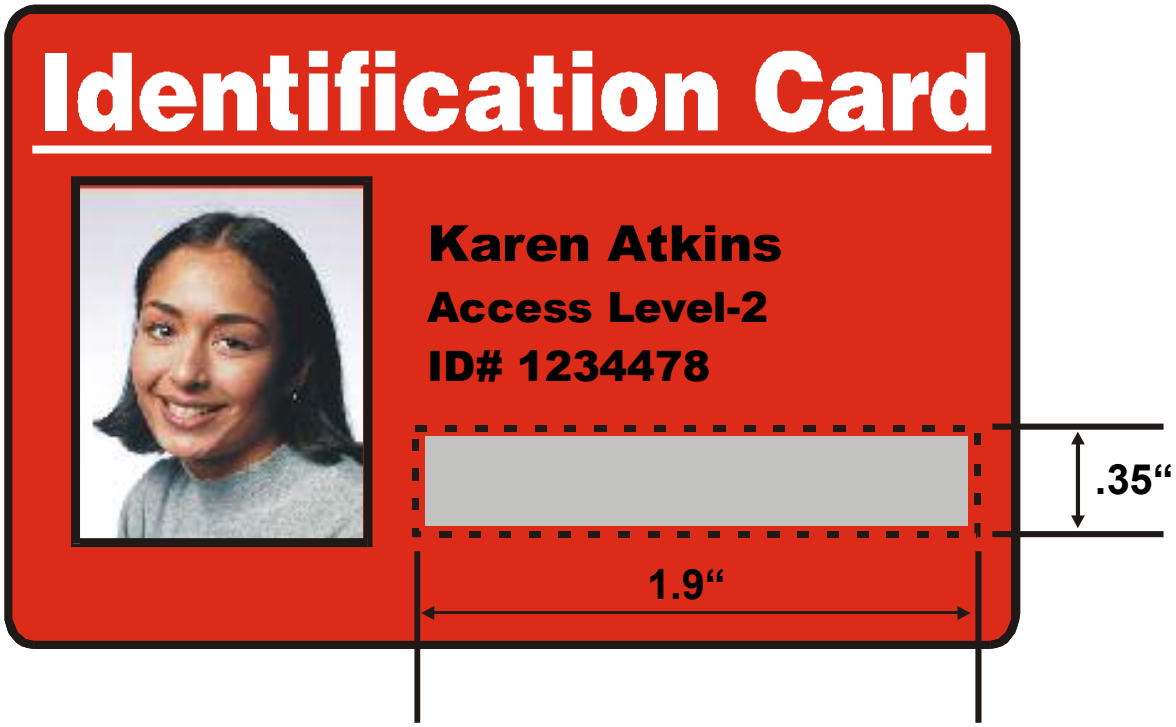

## Using the Defined Area Option (continued)

| Step | Procedure |
|---|---|
| 4 | Measure from the lower left corner of the card up and over to the lower left corner of for the defined area to begin and enter these values into the X and Y boxes. (**Note:** The card grid lines are spaced at .2 inch / 5mm intervals.) |

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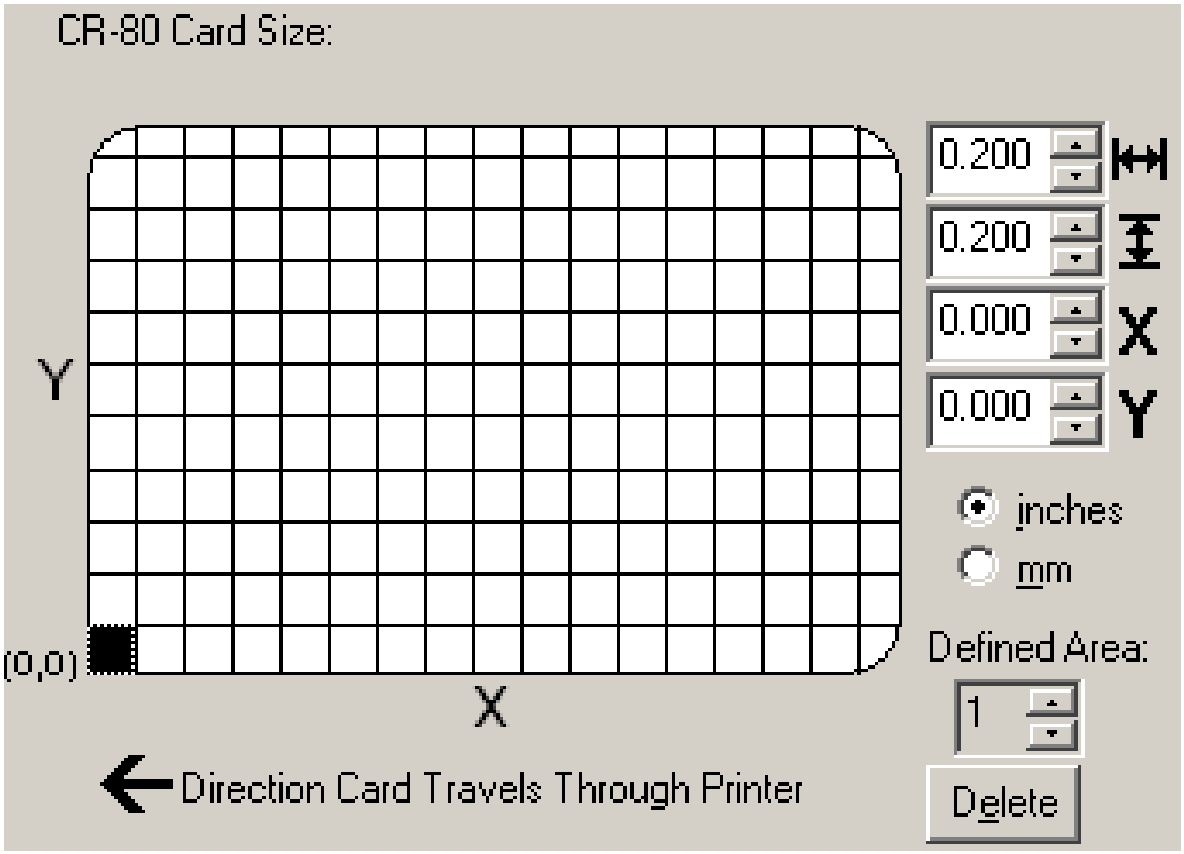
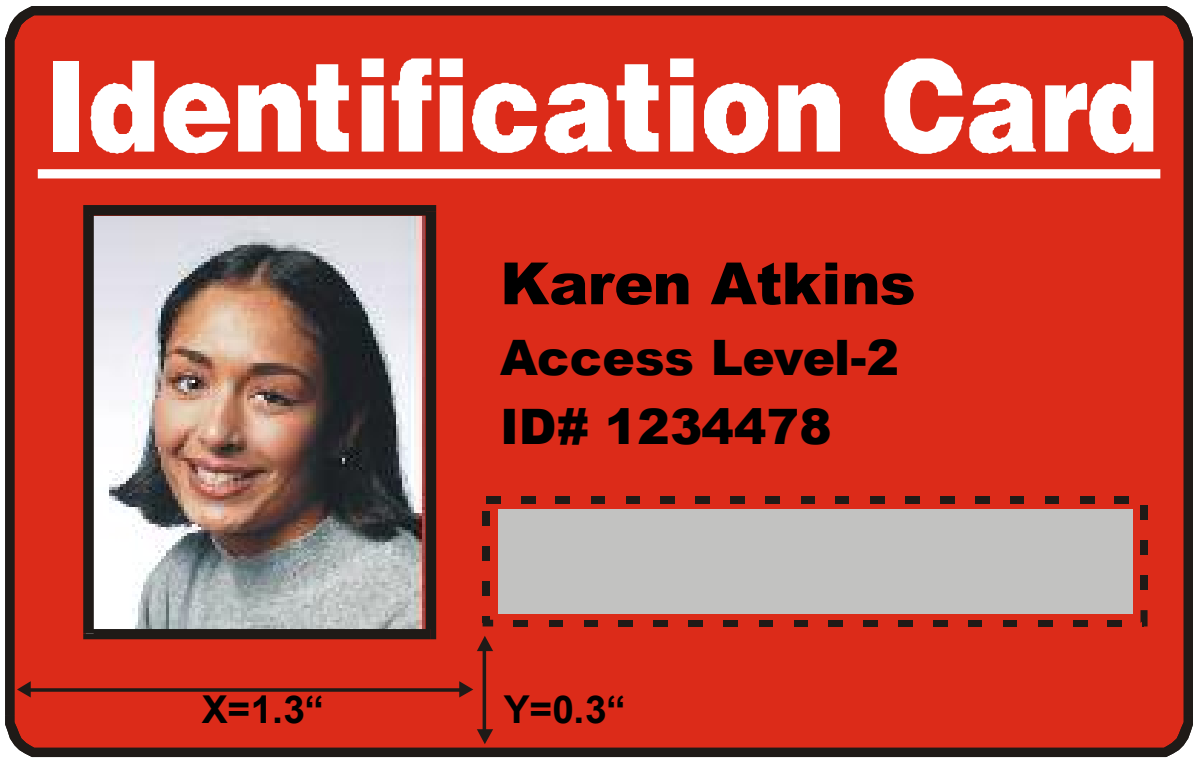


## Using the Defined Area Option (continued)

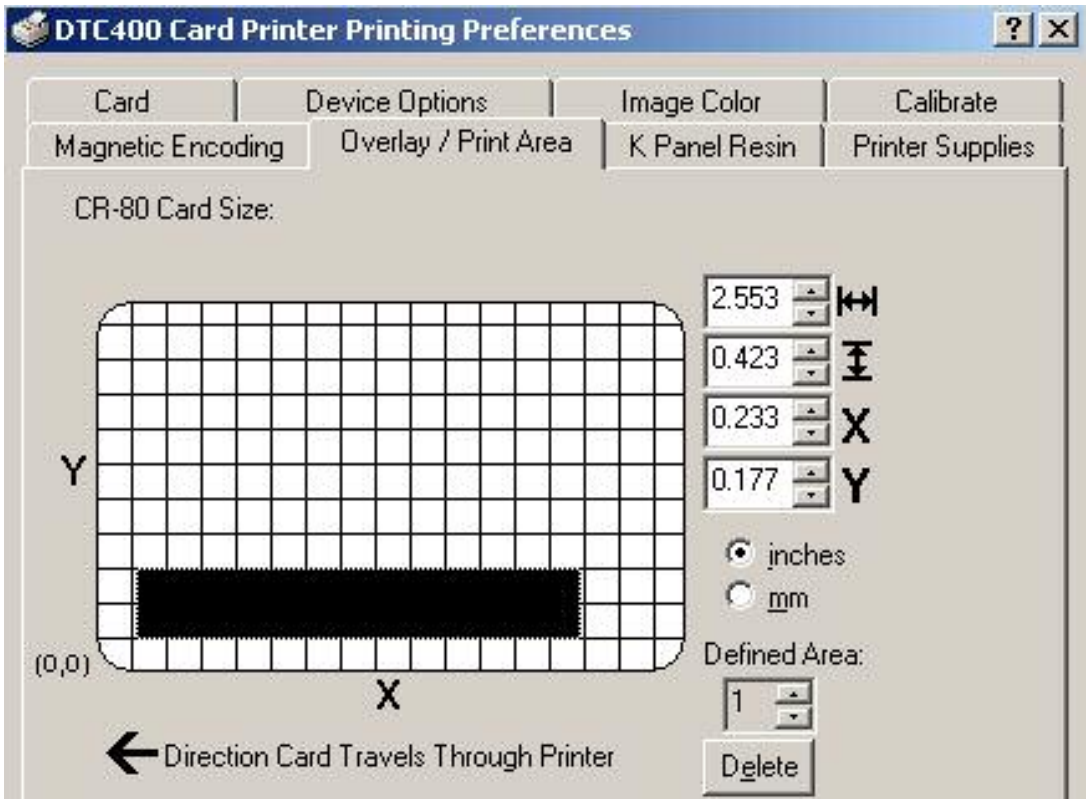
| Step | Procedure |
|---|---|
| 5 | a. Print the card design and observe how the image is oriented on the card as it ejects from the Printer. (**Note:** The location of a defined area is based on the card orientation as it exits the Printer.)<br>b. Measure the defined area location based on the printed card. (**Note:** If selecting the **Rotate Front 180 Degrees** option, the image will appear upside down as it exits the Printer.)<br>c. Position the defined area opposite to the measurement of the onscreen card design (which will appear right side up). |

*Continued on the next page*



## Using the Defined Area Option (continued)

| Step | Procedure |
|---|---|
| 6 | Use the Defined Area arrows to navigate back and forth from area to area. (**Note:** The active area will always be highlighted with a dotted outline.)<br>a. Define another area by clicking on the Defined Area UP arrow.<br>• Another .2" x .2" / 5mm x 5mm area will appear in the lower left-hand corner. (**Note:** This is the location in which all newly defined areas will first appear.)<br>• Up to 5 areas can be defined; however, additional areas cannot be added until the most recently created area has been moved or sized. (**Note:** For this reason, size and position each area as it is created.)<br>b. Delete an area by using the Defined Area arrows to select the area and click on the **Delete** button. (**Note:** If all areas are deleted, the **K Panel Resin** options will automatically be deselected.) |

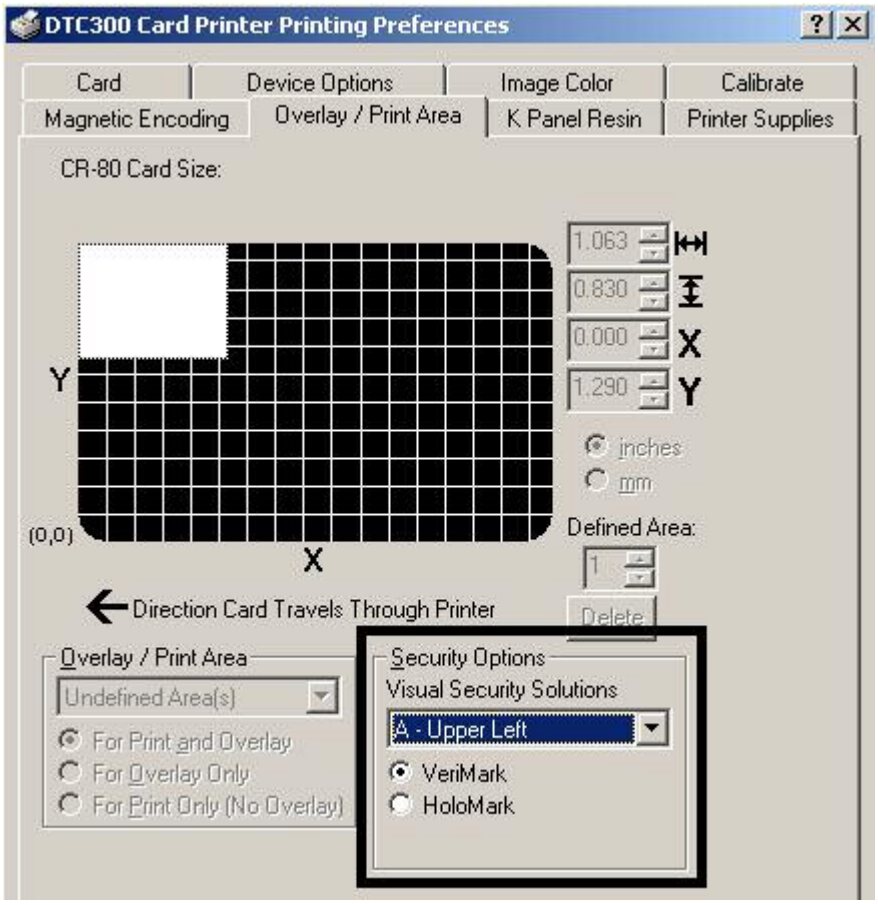


## Using Security Options (Visual Security Solutions)

The Visual Security Solutions dropdown menu list will be used to enable and select which type of visual security will be used. The Visual Security dropdown list will be selectable only on the Front side (see below). Visual Security is not an option for the back side.

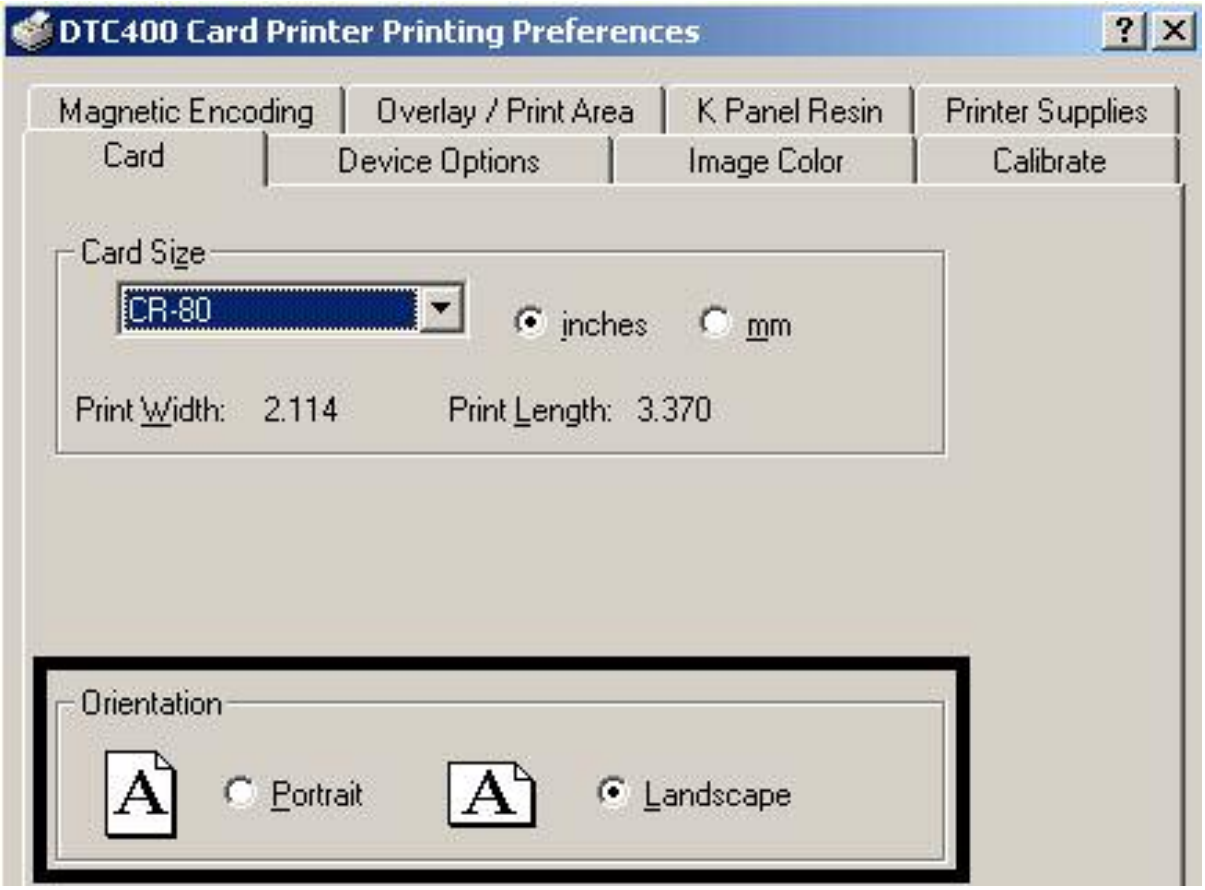
The following actions will occur when one of the Visual Security locations is selected.

- The Overlay / Print Area will be disabled.
- The Security Options become selectable.



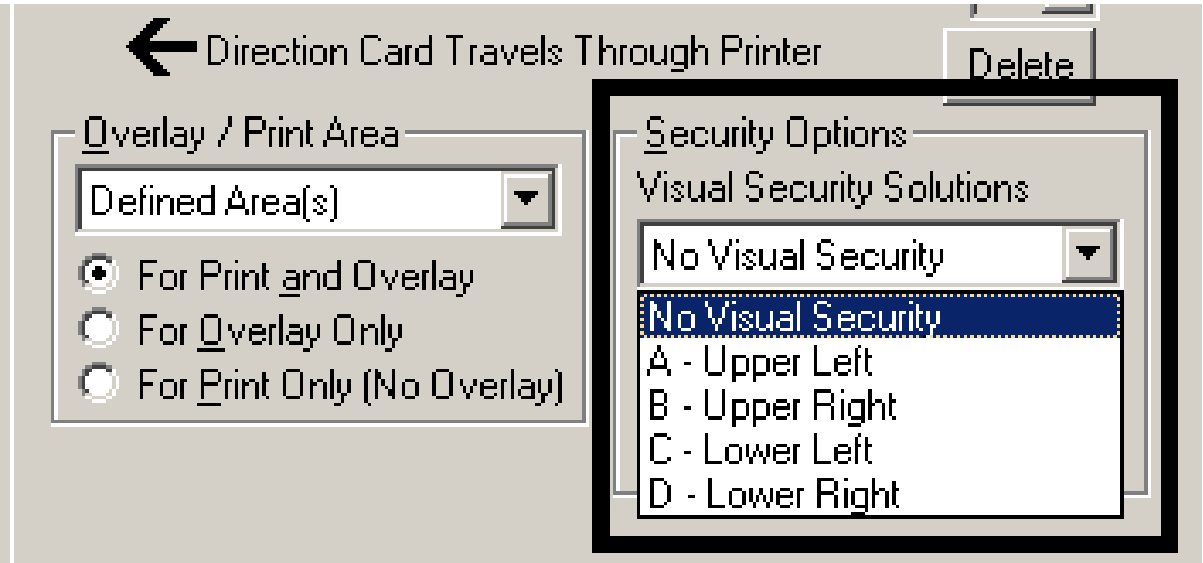
## Selecting Orientation - Landscape under Card tab

| Step | Procedure |
|---|---|
| 1 | Select the **Landscape** radio button (below) under Orientation under the Card Size tab to use the Visual Security Solutions (A to D), as shown in this window. |



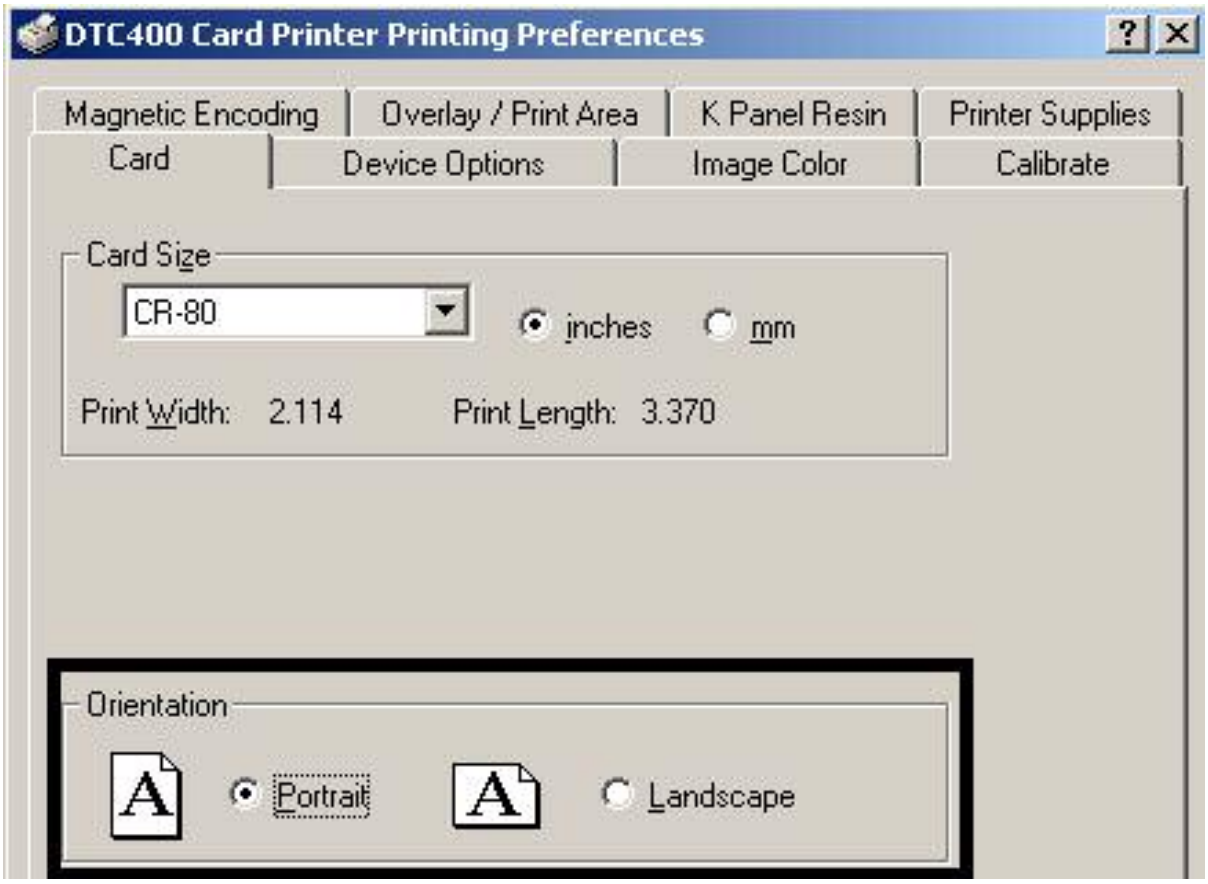
## Selecting the Visual Security Solutions dropdown menu (A to D)

| Step | Procedure |
|---|---|
| 1 | Click on the Visual Security Solutions dropdown menu (below) under the Landscape - Orientation (see above) to use the options shown in this display. |



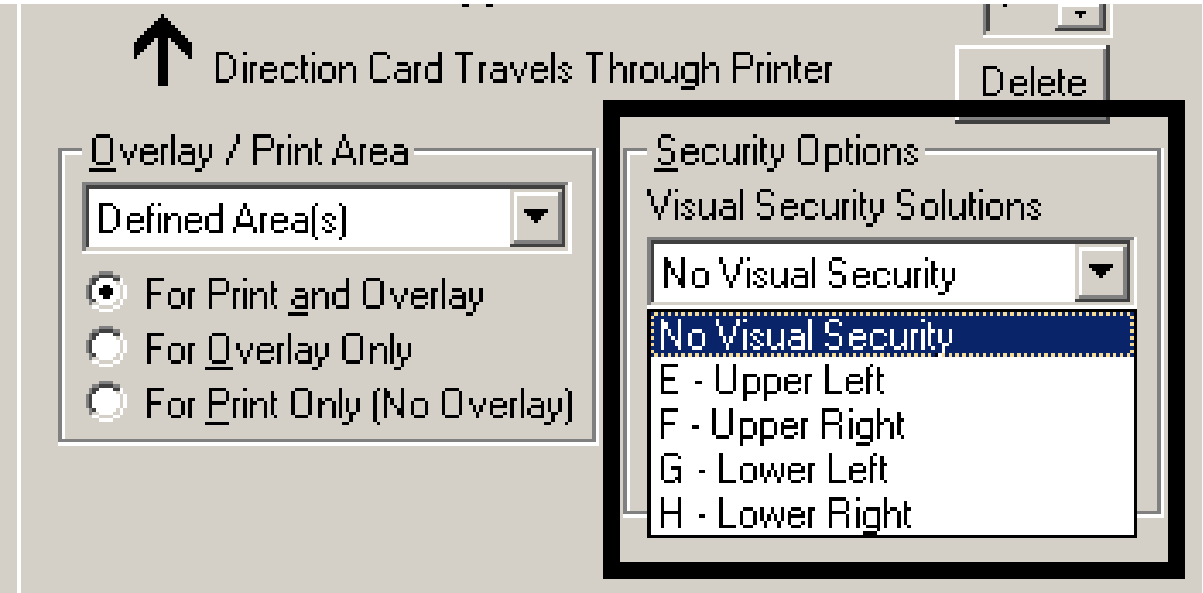
## Selecting Orientation - Portrait under Card tab

| Step | Procedure |
|---|---|
| 1 | Select the **Portrait** radio button (below) under Orientation under the Card Size tab to use the Visual Security Solutions (E to H), as shown in this window. |



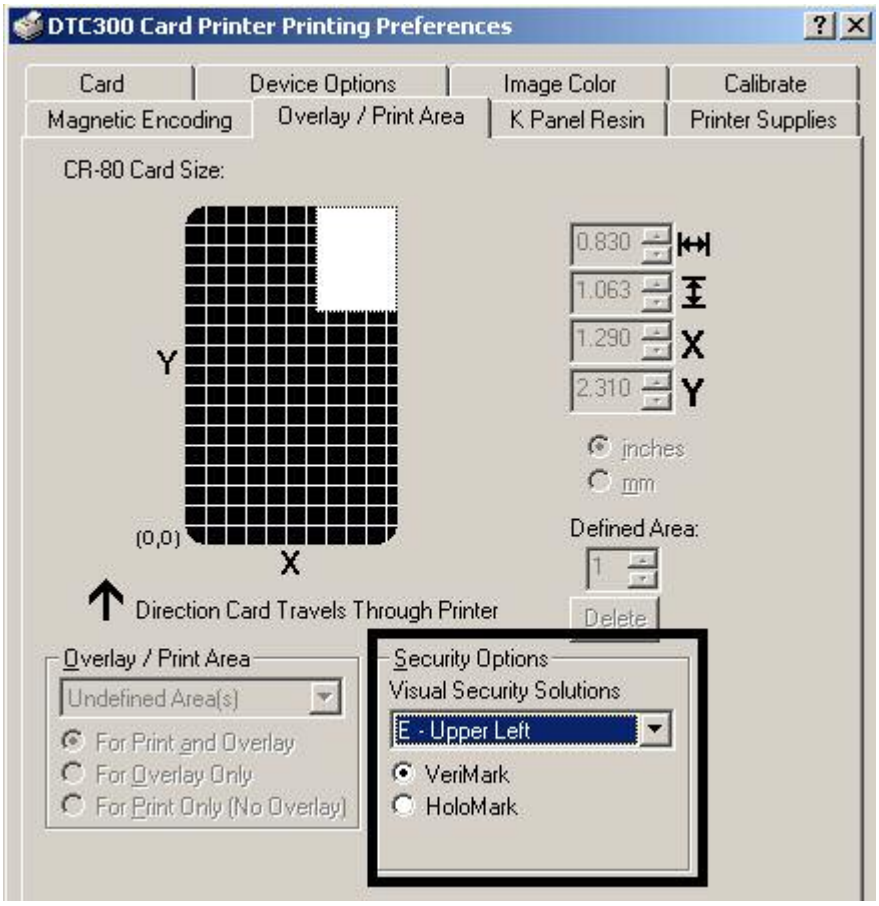
## Selecting the Visual Security Solutions dropdown menu (E to H)

| Step | Procedure |
|---|---|
| 1 | Click on the Visual Security Solutions dropdown menu under the Portrait - Orientation (see above) to use the options shown below. |



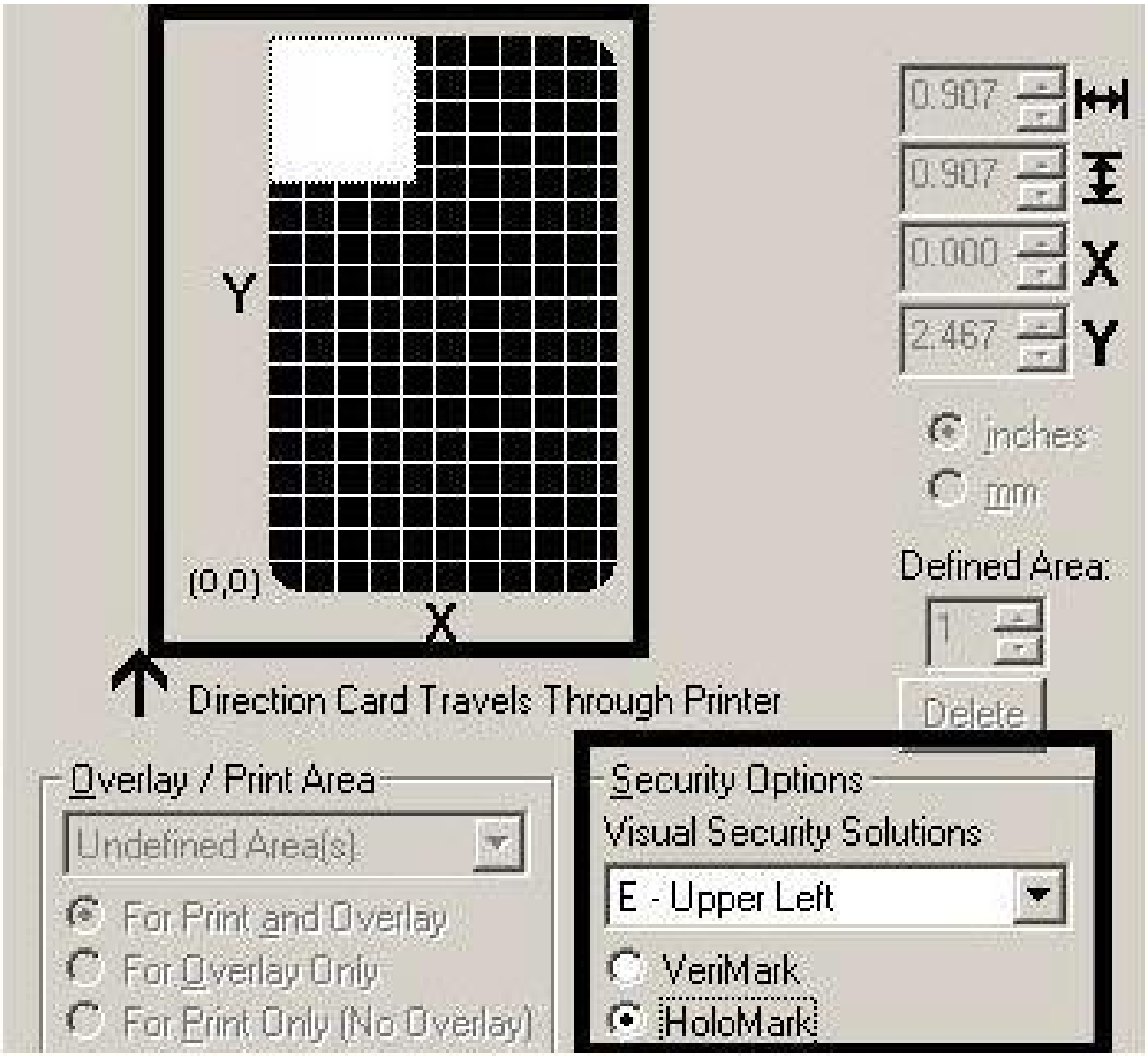
## Selecting the VeriMark radio button

| Step | Procedure |
|---|---|
| 1 | Click on either the **VeriMark** or **HoloMark** radio button, as shown below. The foil options are used to control the size of the exclusion area. (**Note:** When VeriMark is selected a rectangle-sized area is excluded, HoloMark uses a square sized area.) |
| 2 | Click on the **VeriMark** radio button (below) for the rectangle-sized area. |



## Selecting the HoloMark radio button

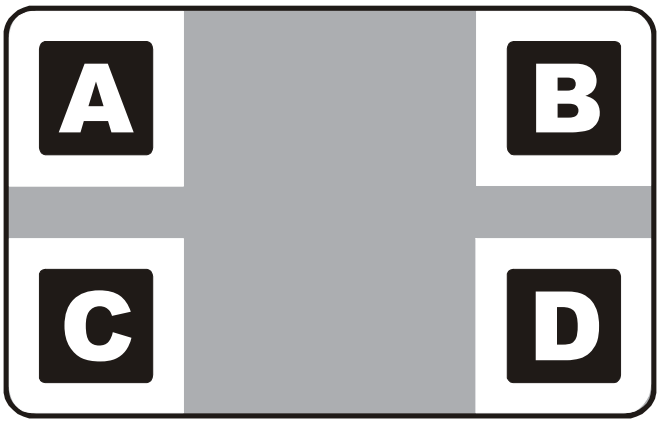
| Step | Procedure |
|---|---|
| 1 | Click on the **HoloMark** radio button (below) for the squared-area size. |



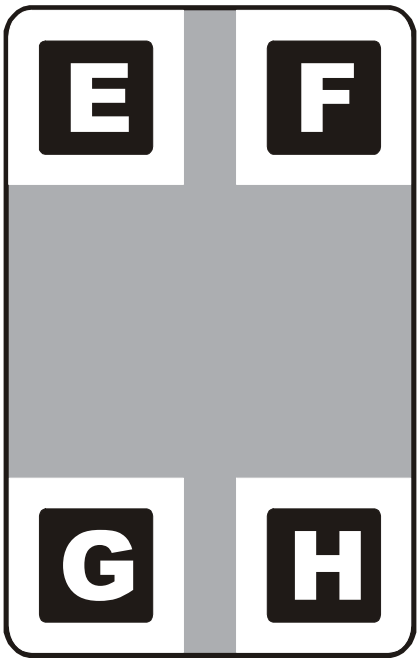
## Reviewing the Custom VeriMark Card (Custom Graphic in a 2D foil)

The custom VeriMark image is stamped on blank, standard-sized cards. You can select one of eight positions (A to H), as shown in the Portrait and Landscape samples below.

**Sample 1: VeriMark Card (Landscape - Orientation) - 4 positions (below)**



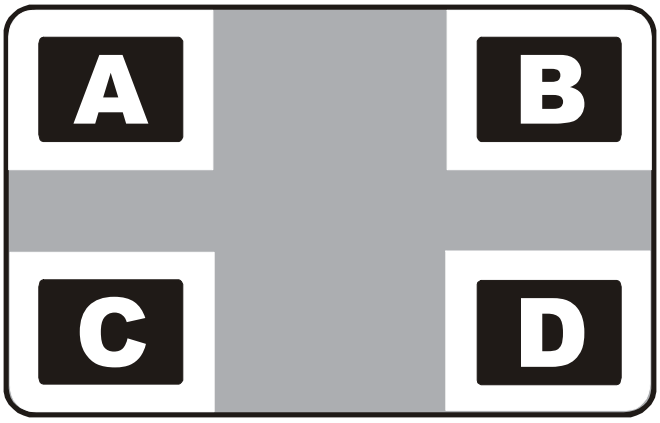

**Sample 2: VeriMark Card (Portrait - Orientation) - 4 positions (below)**



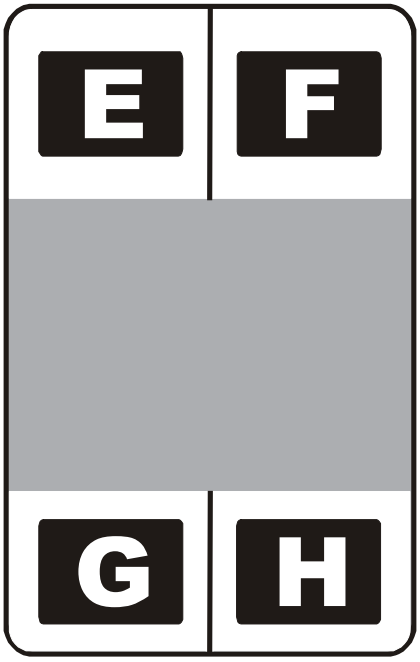
## Reviewing the Custom HoloMark Card (Custom Graphic in a 2D foil)

The custom HoloMark image is stamped on blank, standard-sized cards. You can select one of eight positions (A to H), as shown in the Portrait and Landscape samples below.

### Sample 1: HoloMark Card (Landscape - Orientation) - 4 positions (below)



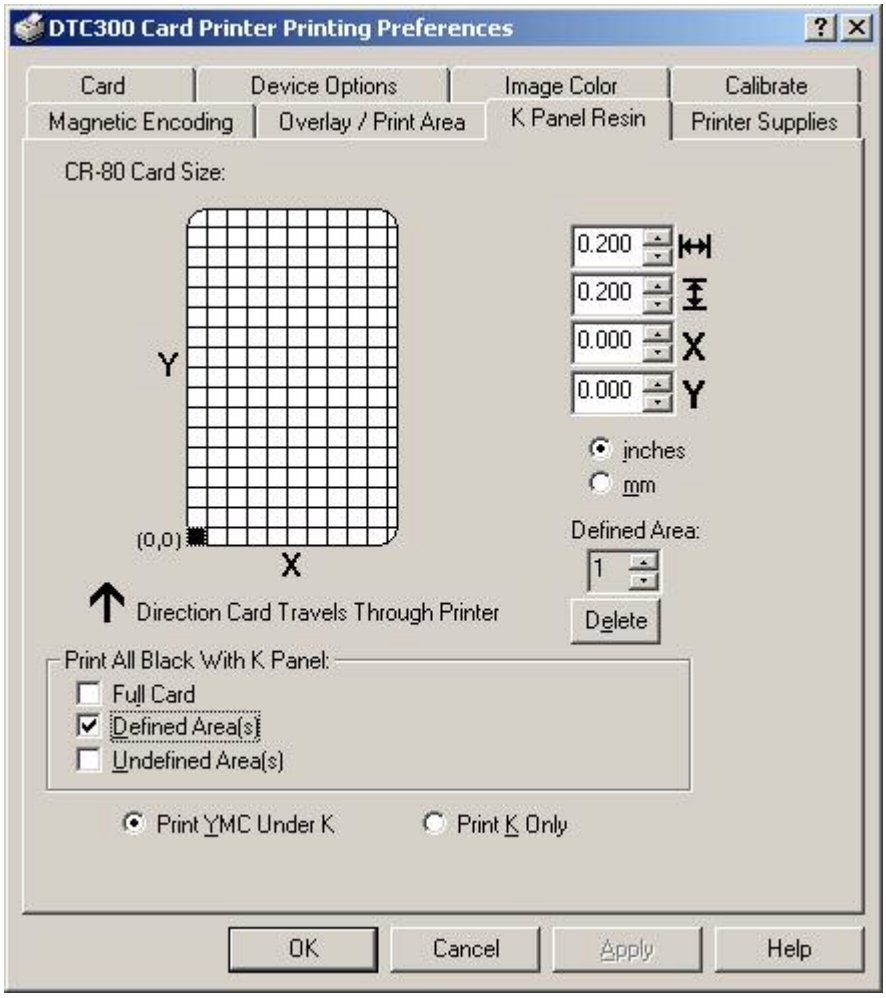

### Sample 2: HoloMark Card (Portrait - Orientation) - 4 positions (below)



# Using the K Panel Resin tab

Select the **K Panel Resin** option to control where the resin black (K) panel of a full-color Ribbon is printed.

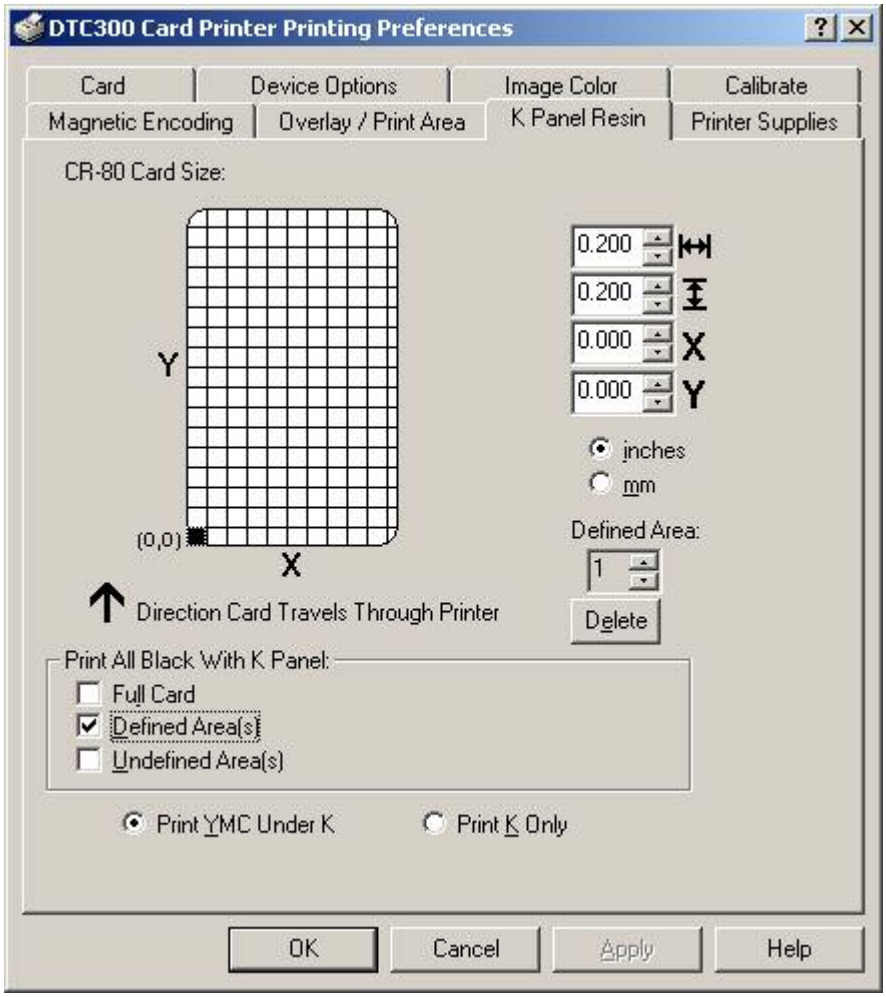
- If printing with a resin-only Ribbon type all K Panel Resin options will be grayed out.
- Resin black text is desirable due to its sharp, saturated black coloring and resin black bar codes are often required by Ultra Violet barcode readers to ensure readability when scanned.)



## Selecting from the Print All Black With K Panel options

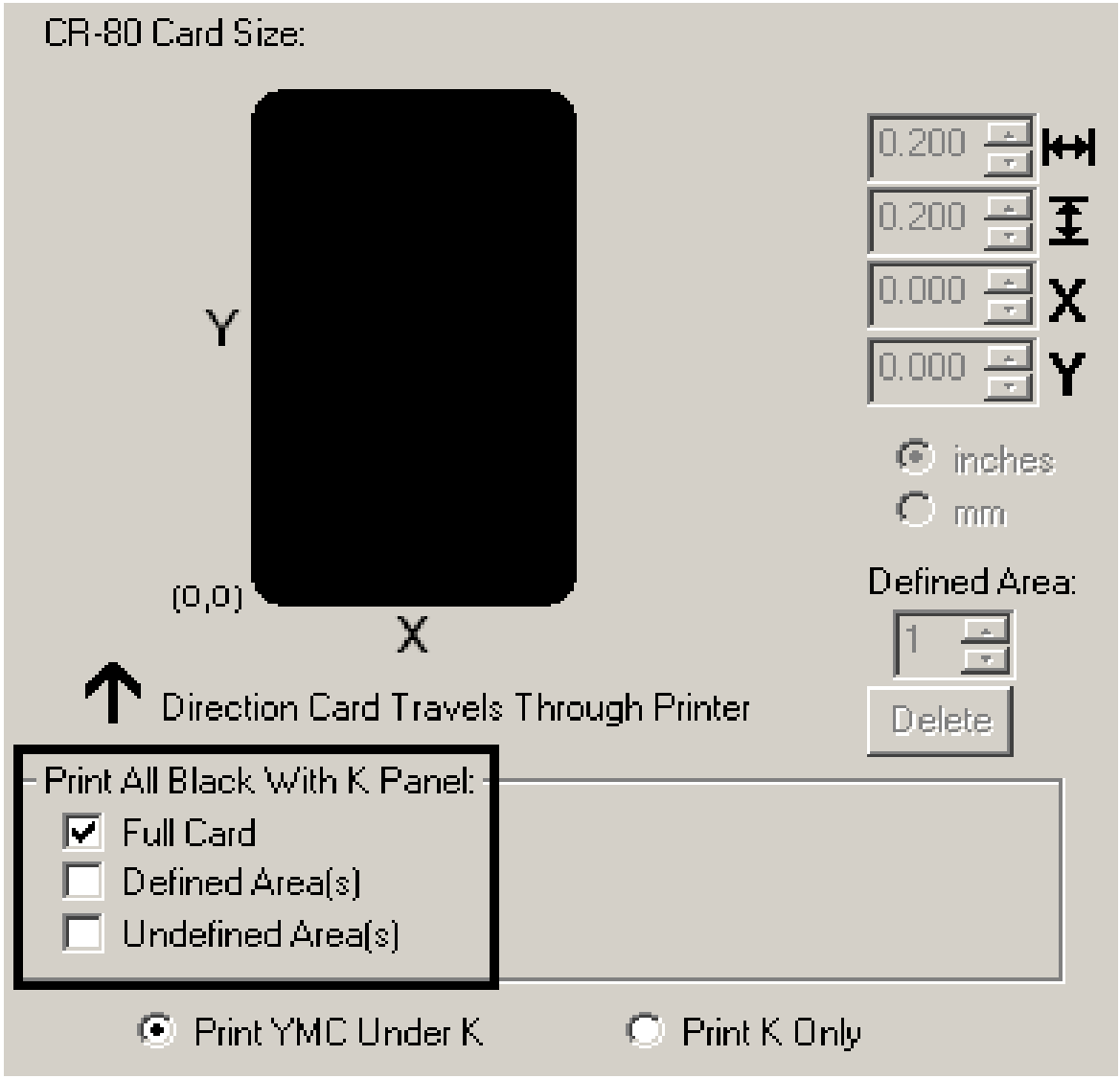
Select one of the three options listed under **Print All Black With K Panel** if the black text or bar codes are not TrueType fonts and/or are not printing with the resin black panel. (**Note:** The Printer Driver will print areas of the image where it finds black coloring with the print Ribbon's resin black (K) panel as specified by each of the following options.

| Step | Procedure |
|---|---|
| 1 | When none of the options within this window are selected, the Printer Driver will automatically print all TrueType black text and bar codes only with the Resin Black (K) Panel of the print Ribbon. |



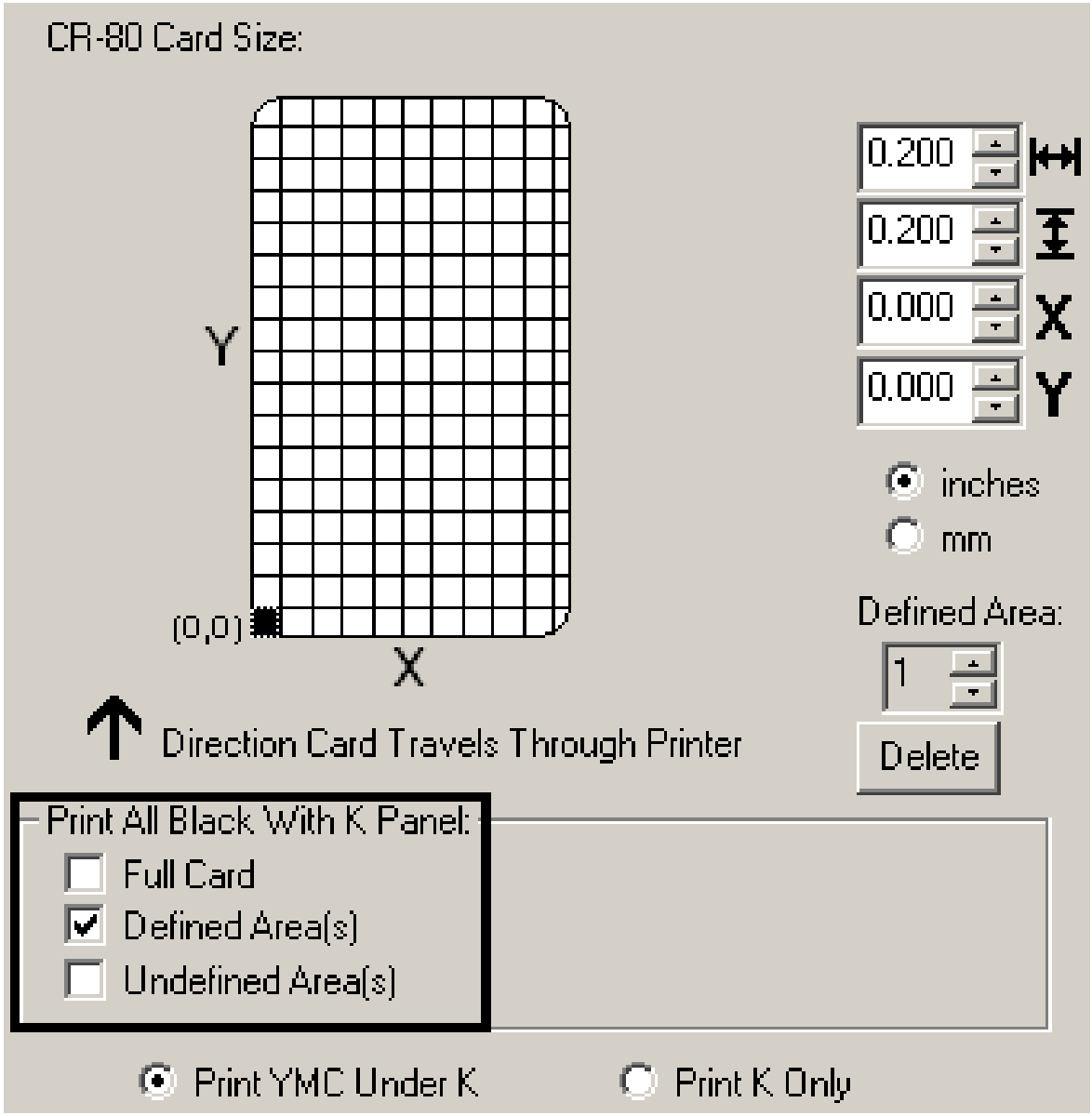
## Selecting the Full Card option

| Step | Procedure |
|---|---|
| 1 | Select the **Full Card** option for the Printer Driver to print the resin black (K) panel for all black found within all areas of the image. |



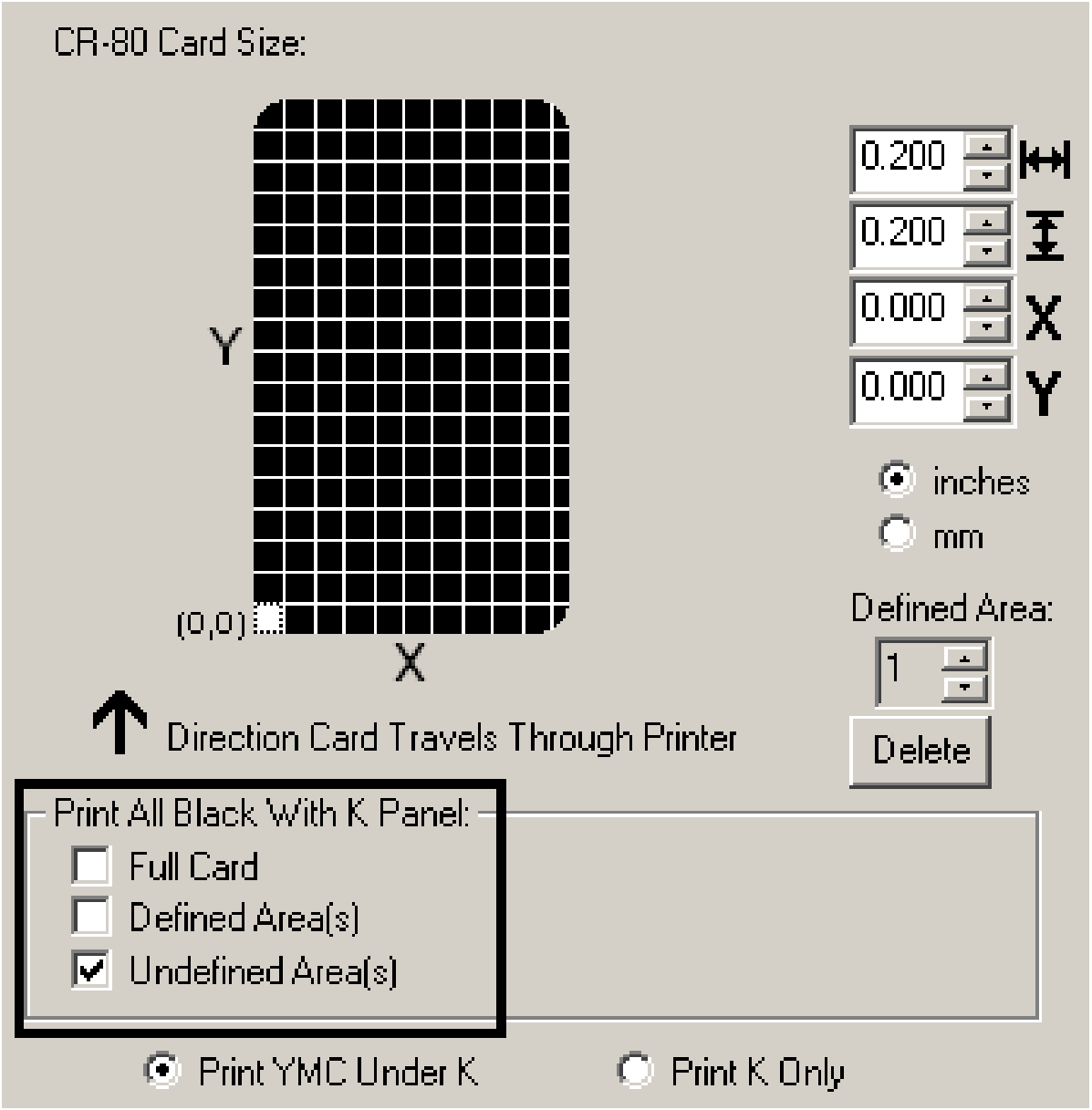
## Selecting the Defined Area(s) option

| Step | Procedure |
|---|---|
| 1 | Select the **Defined Area(s)** option for the Printer Driver to print the resin black (K) panel for all black found only in a desired and defined area or areas. |



## Selecting the Undefined Area(s) option

| Step | Procedure |
|---|---|
| 1 | Select the **Undefined Area(s)** option for the Printer Driver to print the resin black (K) panel for all black found only in the space outside the defined areas. (**Note:** In the card grid, black indicates the area in which the resin black (K) panel will be printed.**)** |

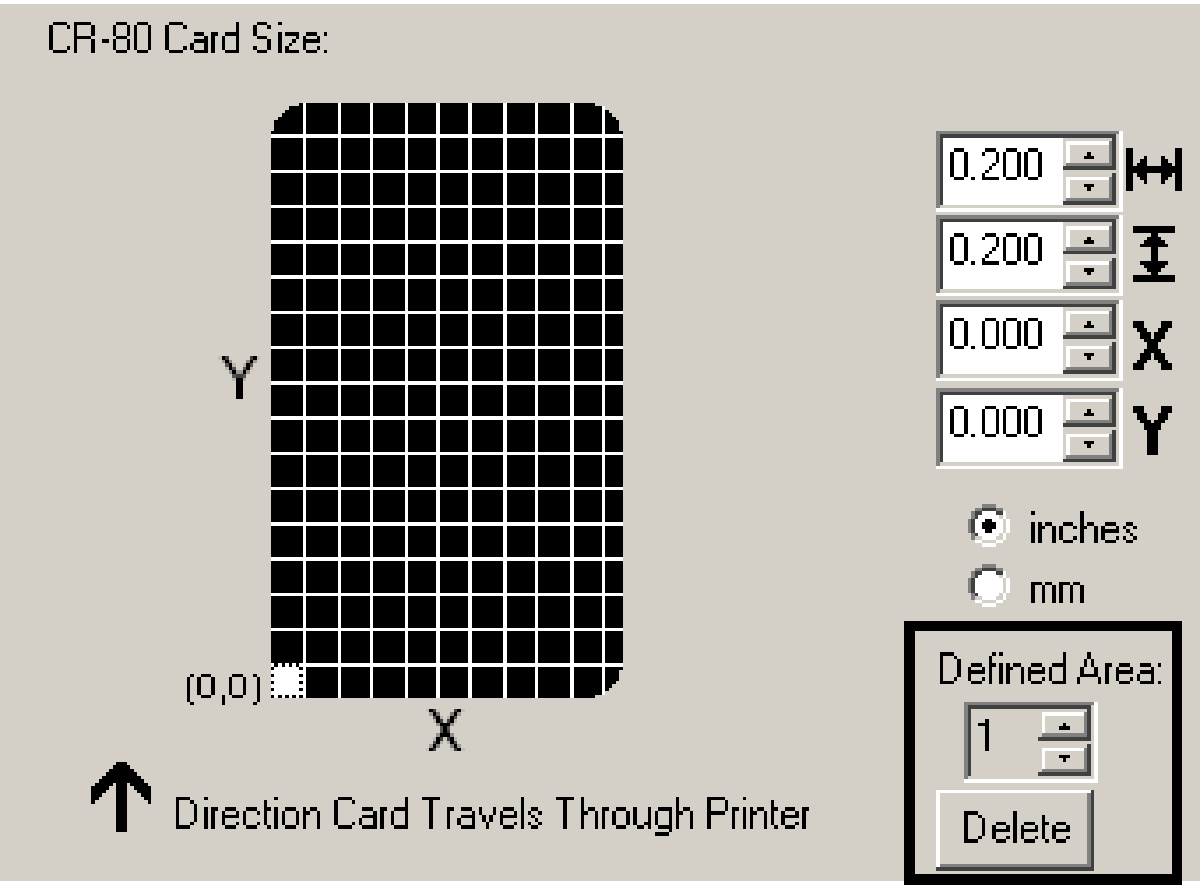


## Selecting the Defined Area(s) function

To define an area, refer to the following steps:

| Step | Procedure |
|---|---|
| 1 | Click on the **Defined Area(s)** check box. (**Note:** This will activate the card grid in the upper half of the window. It is through this card grid that up to five areas can be defined.)<br>When the card grid is first activated, a small square will appear at its default size of .2" x .2" / 5mm x 5mm and at its default location in the lower left-hand corner (0,0). This square represents the first defined area.<br>(**Note:** Changing the orientation of the card in the Card Tab will change the appearance of this Tab.) |

*Continued on the next page*



## Selecting the Defined Area(s) function (continued)

| Step | Procedure |
|---|---|
| 2 | a. Determine the area of the card necessary to define. In the sample (below), this area is indicated by the dashed outline.<br>b. Determine the size of this area by actually printing a card and looking at it in the same orientation as when it exits the Printer. |
| 3 | Measure the total size for the area and enter those dimensions into the dimension boxes. (**Note:** The minimum size an area can be is .2" x .2" / 5mm x 5mm.) |

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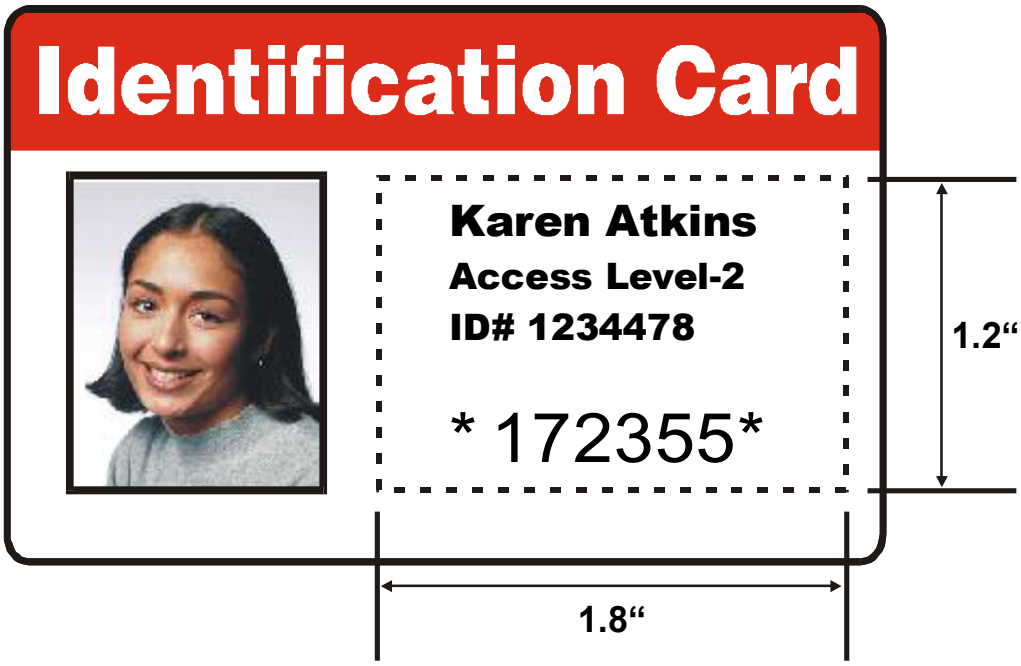
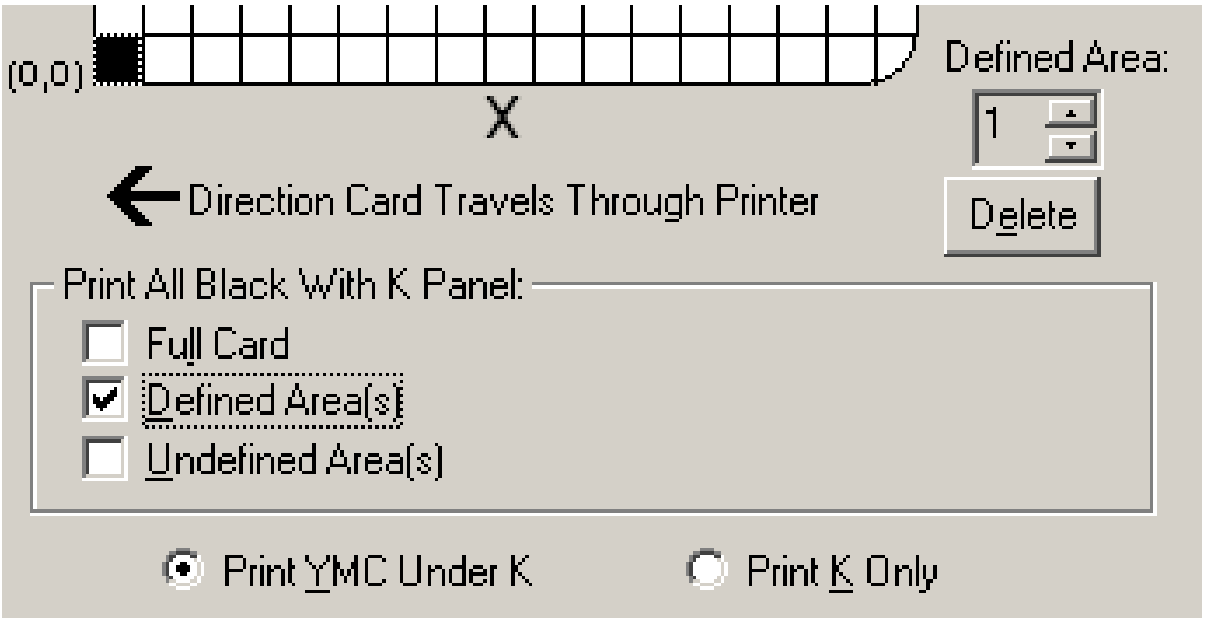


## Selecting the Defined Area(s) function (continued)

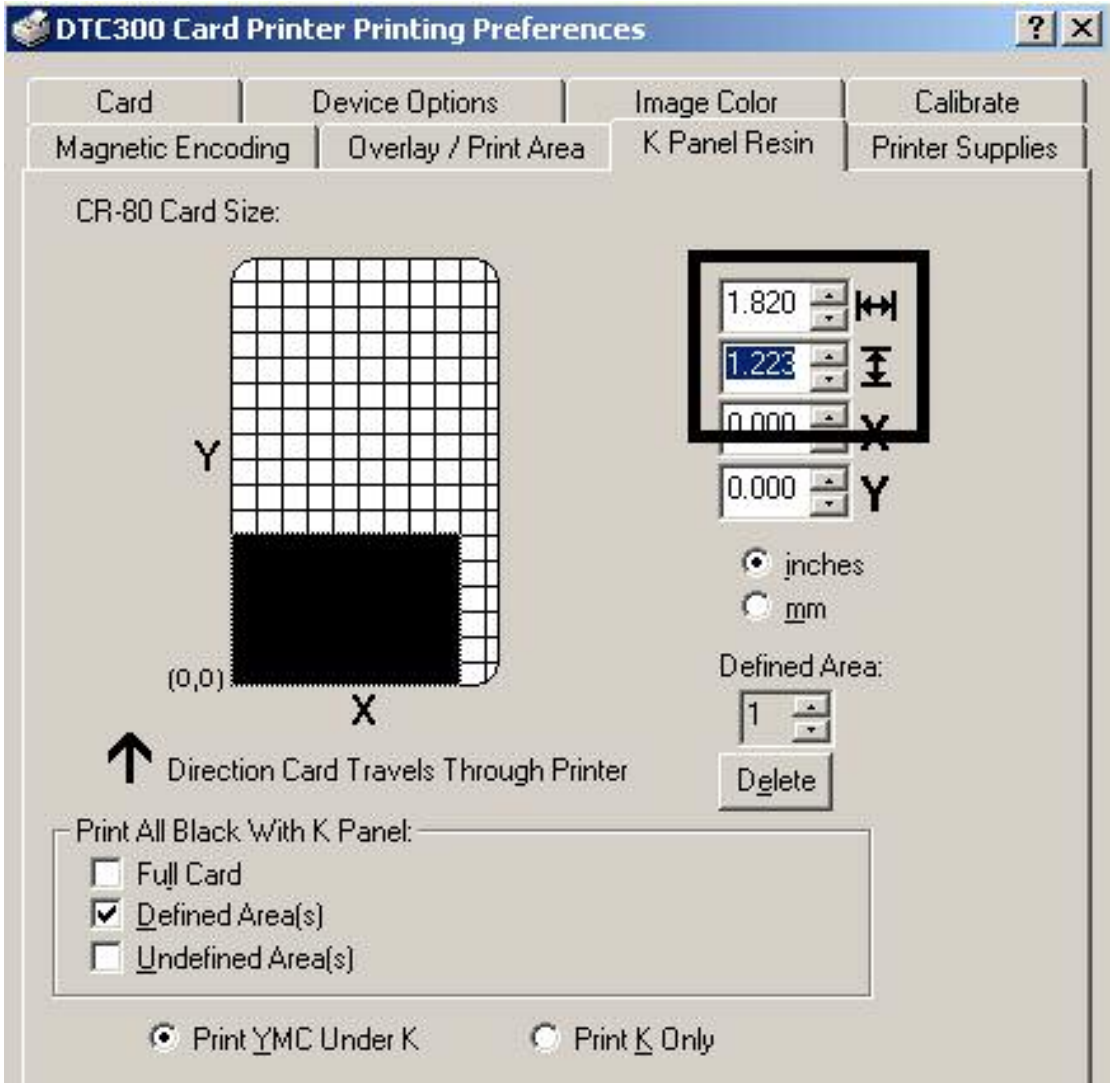
| Step | Procedure |
|---|---|
| 4 | a. Once the area is sized properly measure from the lower left corner of the card up and over to the lower left corner for the defined area to begin.<br>b. Enter these values into the X and Y boxes.<br>(**Note:** The card grid lines are spaced at .2 inch / 5mm intervals.) |
| 5 | a. Print the card design and note how the image is oriented on the card as it ejects from the Printer. (**Note:** The location of a defined area is based on the card orientation as it exits the Printer.)<br>b. Measure the defined area location based on the printed card. (**Note:** If selecting the **Rotate Front 180 Degrees** option, the image will appear upside-down as it exits the Printer. In this case, position the defined area opposite to the measurement from the onscreen card design, which will appear right side up.) |

*Continued on the next page*



### Selecting the Defined Area(s) function (continued)

Refer to the previous procedure.




*Continued on the next page*

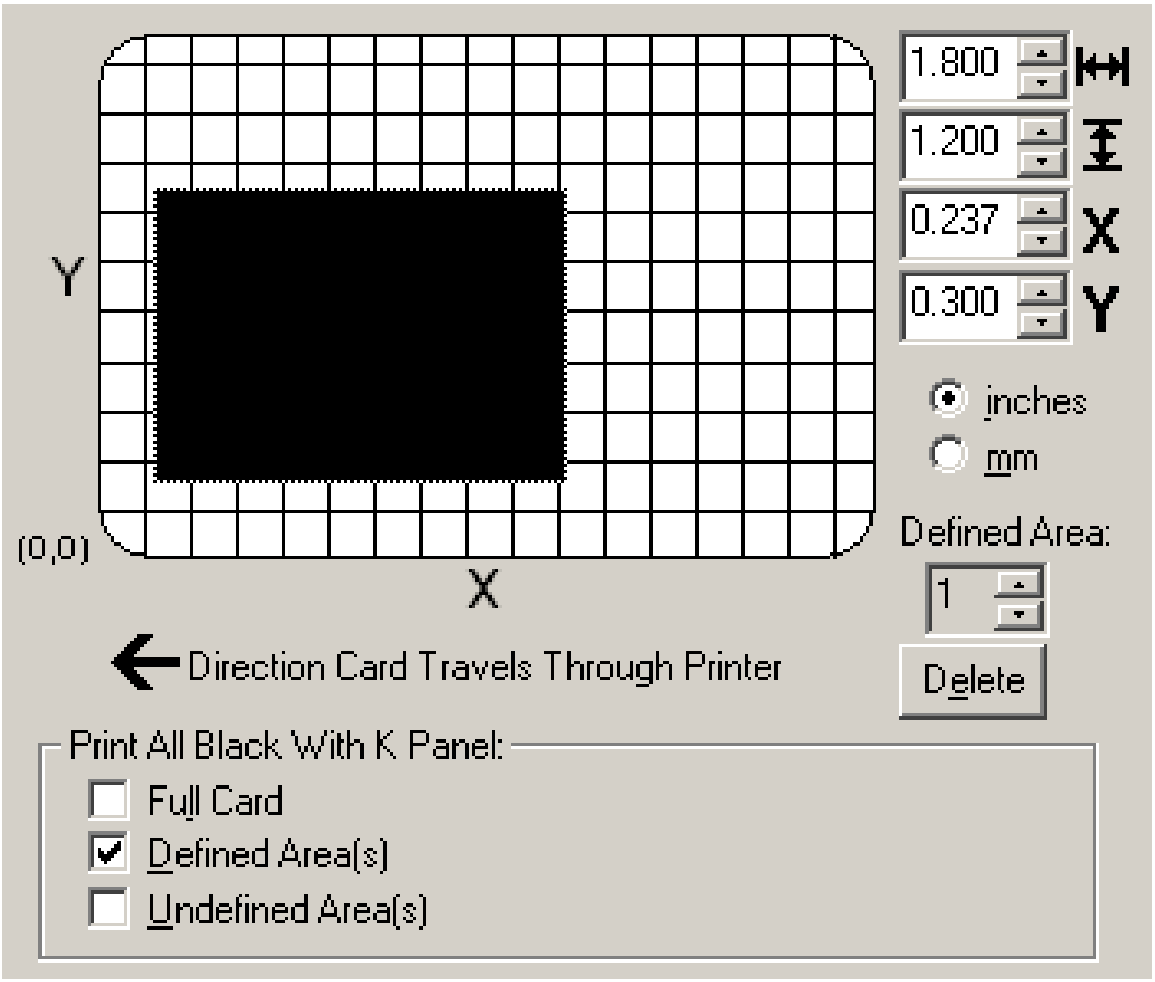
**Selecting the Defined Area(s) function (continued)**

Refer to the previous procedure.


*Continued on the next page*

**Selecting the Defined Area(s) function (continued)**

Refer to the previous procedure.

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## Selecting the Defined Area(s) function (continued)

| Step | Procedure |
|---|---|
| 6 | Define another area by clicking on the **Defined Area** up arrow. (**Note:** Another .2" x .2" / 5mm x 5mm area will appear in the lower left-hand corner. This is the location in which all newly defined areas will first appear.) |
| 7 | Use the **Defined Area** arrows to navigate back and forth from area to area. (**Note:** The active area will always be highlighted with a dotted outline. Up to 5 areas can be defined.)<br>Size and position each area as it is created because additional areas cannot be added until the most recently created area has been moved or sized. |
| 8 | Delete an area by using the Defined Area arrows to select the area and clicking on the **Delete** button. (**Note:** If all areas are deleted, the K Panel Resin options will automatically be deselected.) |

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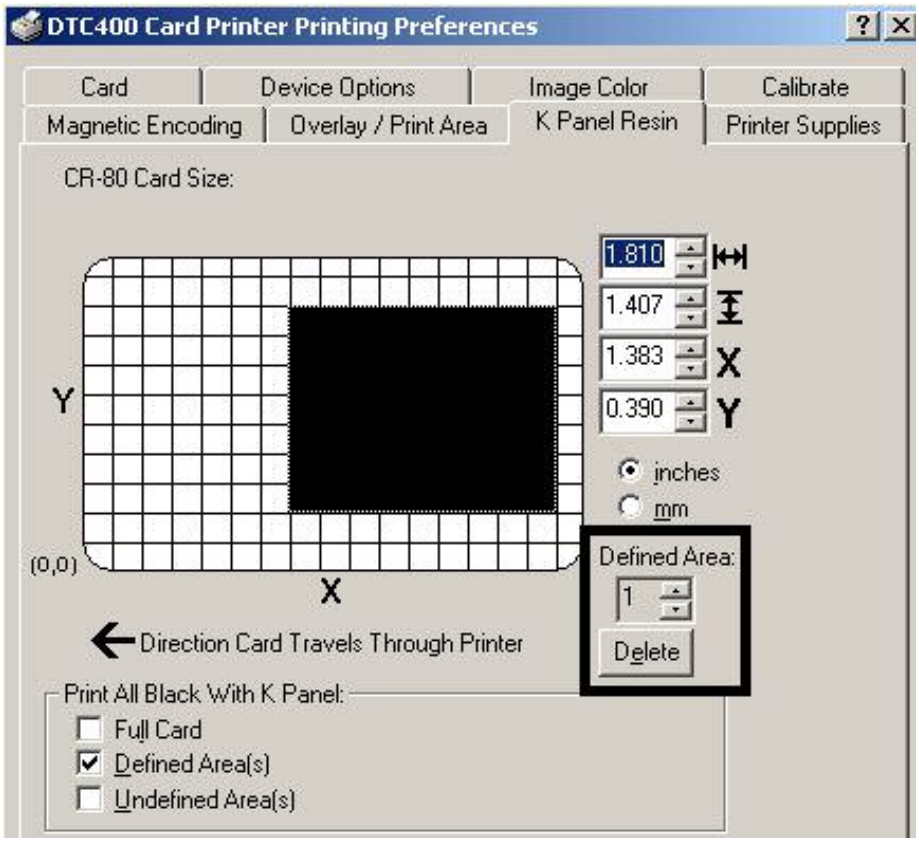
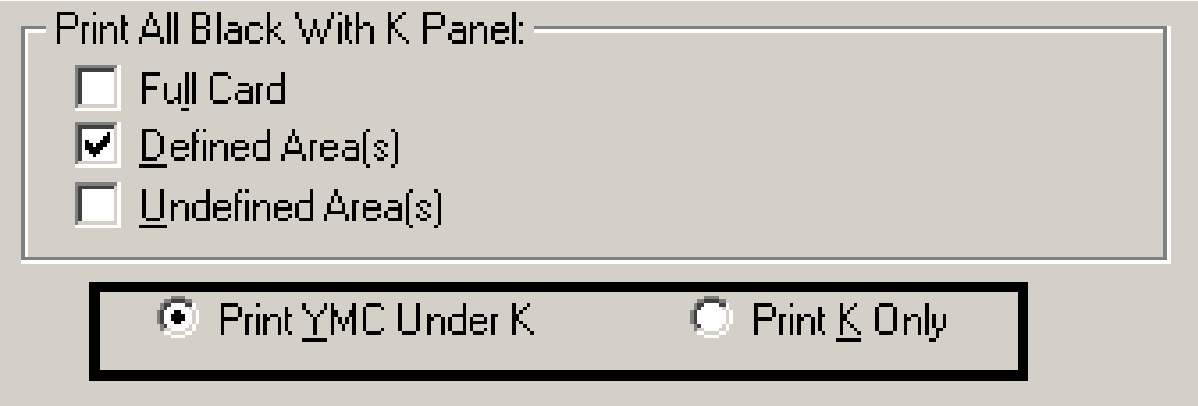


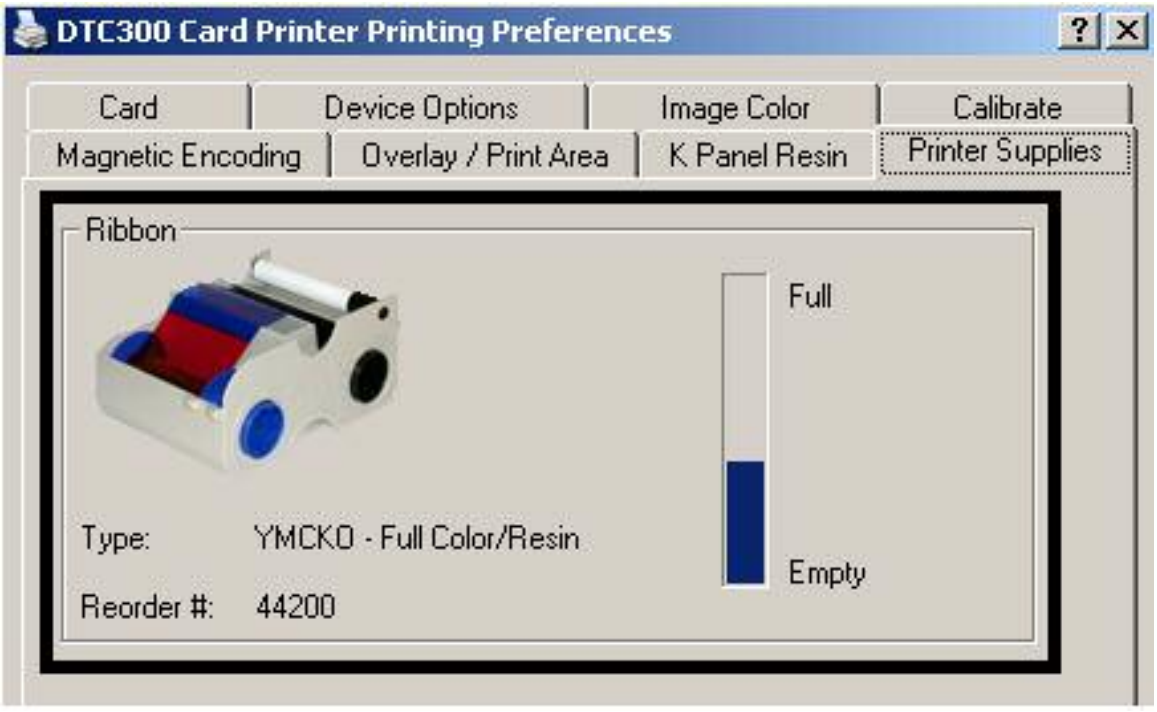
## Selecting the Print YMC under K and Print K Only options

| Step | Procedure |
|---|---|
| 1 | • Select between the **Print YMC Under K** and **Print K Only** options. (**Note:** When the **Print YMC Under K** option is selected, all black in the designated areas will print with the Yellow (Y), Magenta (M) and Cyan (C) Ribbon panels directly beneath the resin black (K) panel.)<br>**OR**<br>• Select this option if printing resin black text or bar codes onto a colored background to provide a more gradual transition between the two. |
| 2 | Select the **Print K Only** option if printing resin black onto a white background to maximize the sharpness of printed text and bar codes. (**Note:** When this option is selected, all black in the designated areas will print only with the resin black (K) panel.) |



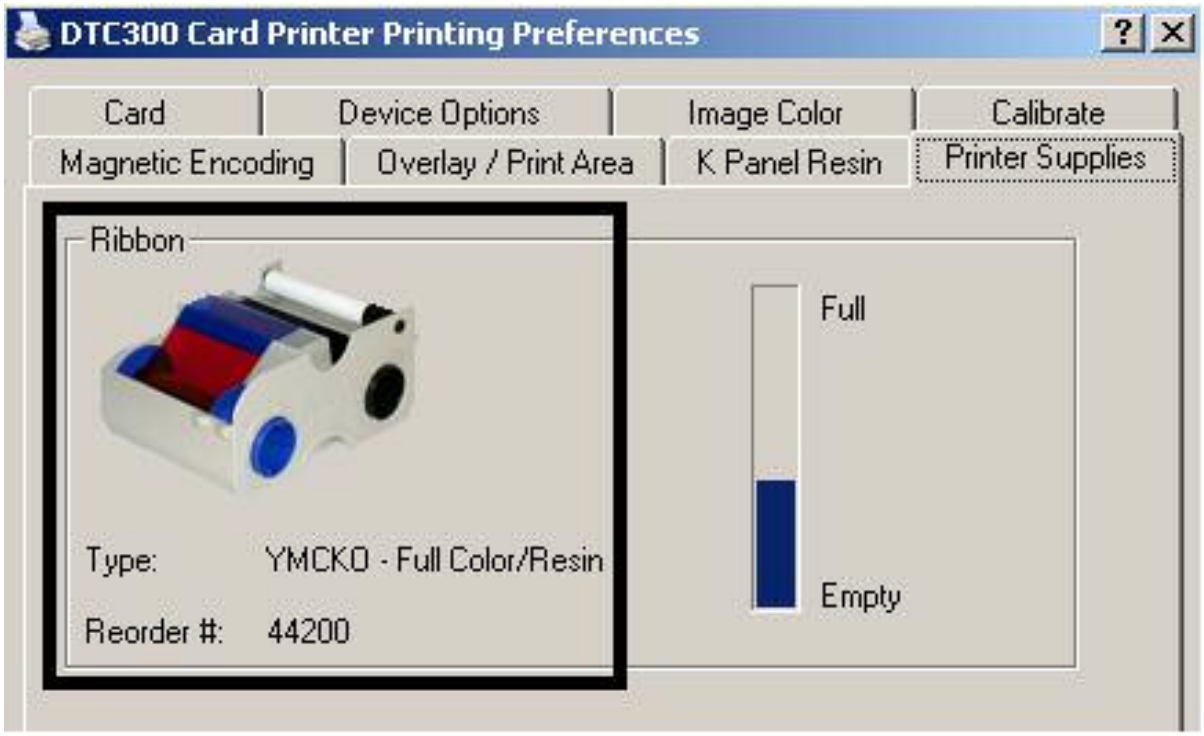
# Using the Printer Supplies tab

Use the options on this tab to view information about the Ribbon installed in the Printer.



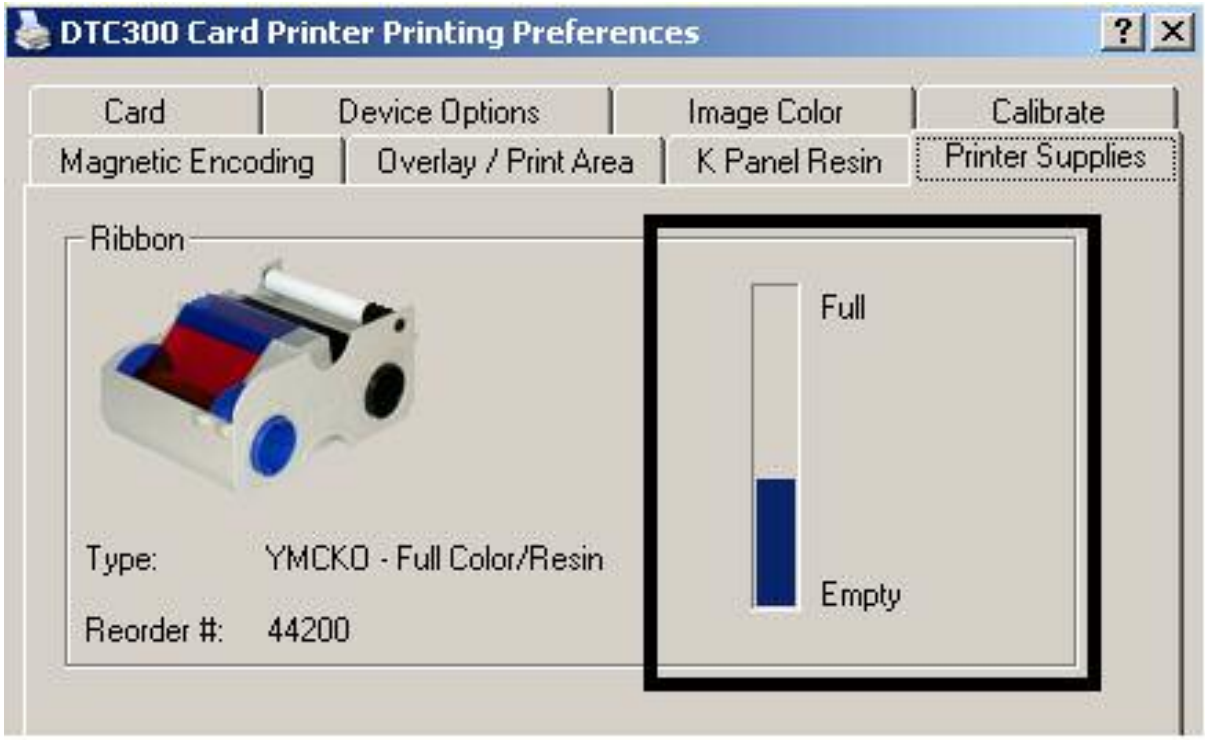
## Reviewing the Ribbon Information

| Step | Procedure |
|---|---|
| 1 | Use the Ribbon information to determine which Ribbon is being used to print with and its part number. |



## Reviewing the Ribbon Level Indicator

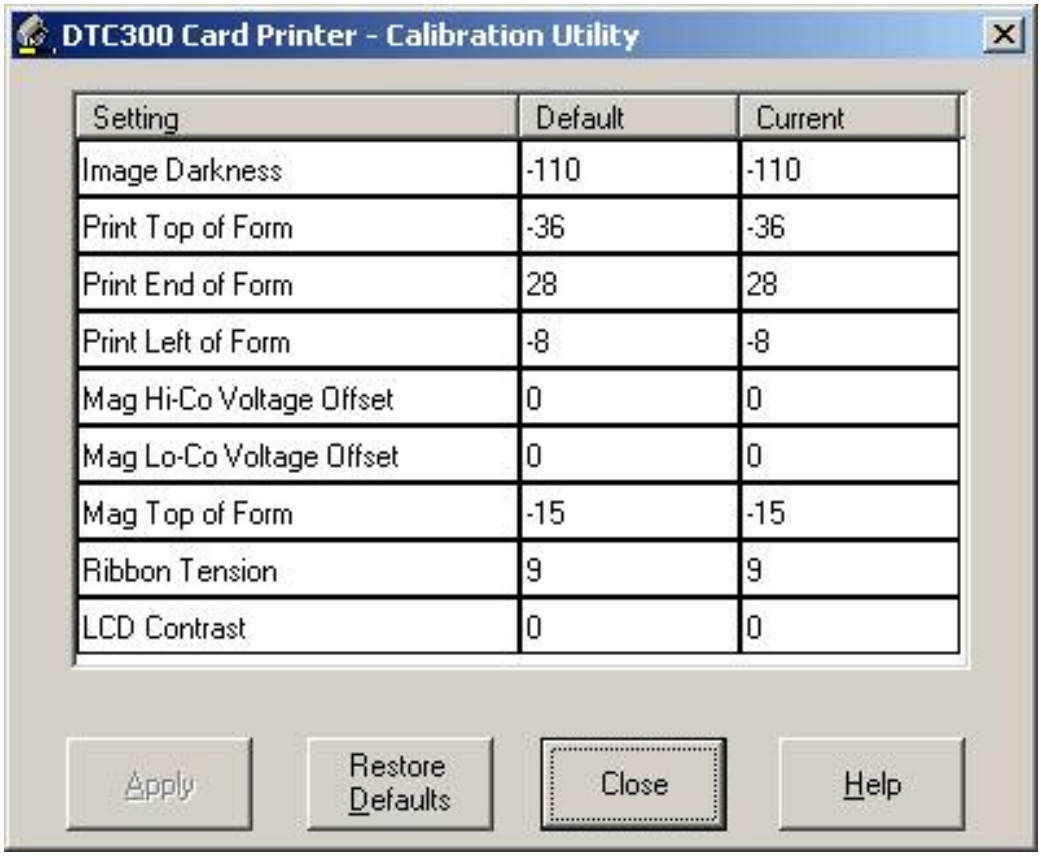
| Step | Procedure |
|---|---|
| 1 | Use the Ribbon Level indicator to view approximately how much Ribbon is left. |



# Using the Printer Calibration Utility

Access the Settings dialog box via the **Settings** button on the Calibrate tab. Use the adjustment mode to change the Printer's internal settings. (**Note:** The Card Printer is equipped with an internal adjustment mode programmable through the Settings dialog box. This dialog box is accessible only if the Printer is powered ON, it is in Ready Mode and it is properly connected to the PC.)

**Caution!** These settings are optimized at the factory. In most cases, these settings can be used without changing them.



## Using the Image Darkness Option

Use this option to set the overall darkness of the printed image by increasing or decreasing the amount of heat used by the Printhead when printing.

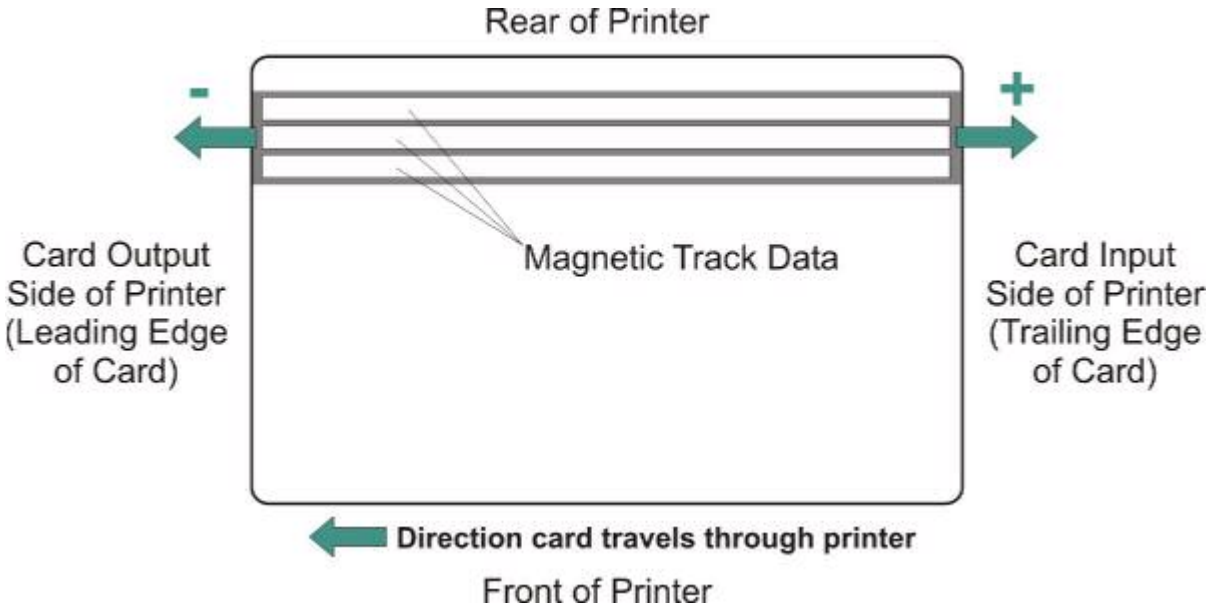
| Step | Procedure |
|---|---|
| 1 | Lighten the printed image by clicking the down arrow to enter a negative value and decrease the amount of Printhead heat.<br>**OR**<br>Darken the image by clicking the up arrow to enter a positive value and increase the amount of Printhead heat.<br>**Caution:** If the value is set too high, the Ribbon may jam or even break. |


## Using the Print Top of Form Option

Use this option to adjust the lengthwise or horizontal position of the printed image on a card so it appears centered. (**Note:** When adjusting this value, keep in mind that cards always remain in the same landscape orientation while moving through the Printer.)

The diagram (below) represents how the printed image will move in relation to the fixed card position as a positive or negative Image Placement value is entered.

| Step | Procedure |
|---|---|
| 1 | Enter a negative value to move the printed image toward the leading edge of the card, or the card output to the side of the Printer.<br>**OR**<br>Enter a positive value to move the printed image toward the trailing edge of the card, or the card input to the side of the Printer.<br>• **Maximum Adjustment Range:** The maximum adjustment range is ±127. As a rule, 10 equals about .030"/. 8mm, which is about the same as the thickness of a standard CR-80 size card.<br>**Caution:** If the negative value is set too high, the print Ribbon may break. |

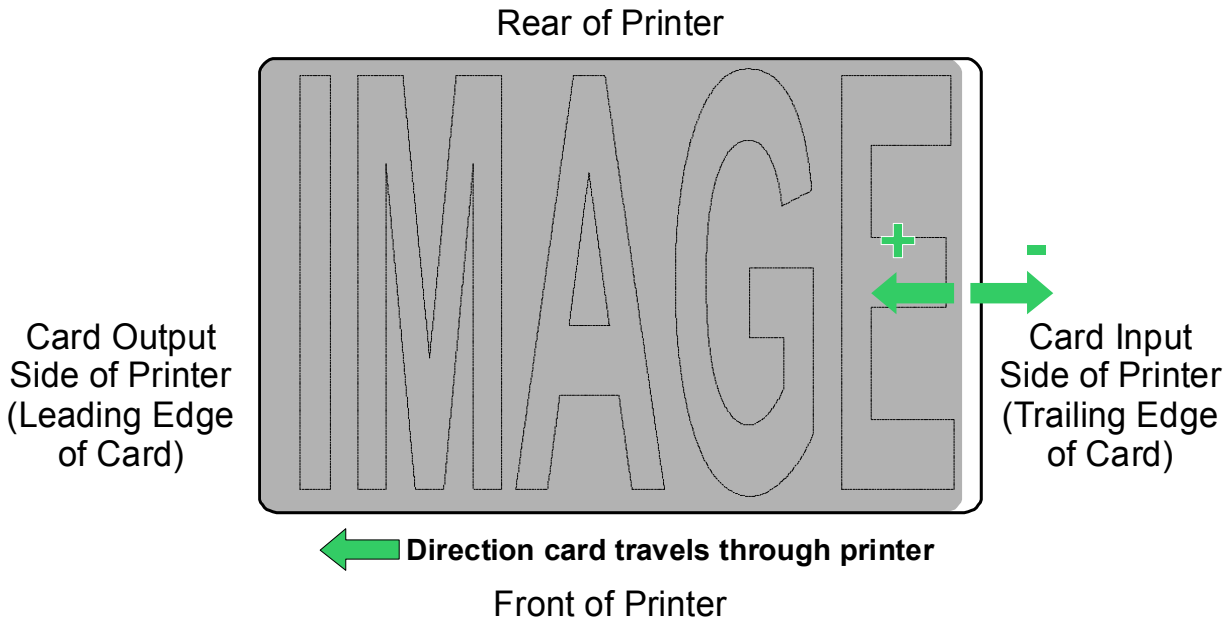


## Using the Print End of Form Option

Use this option to reduce or increase the overall printable area in order to optimize edge-to-edge printing toward the trailing edge of a card. (**Note:** When adjusting this value, keep in mind that cards always remain in the same position while moving through the Printer.)

The diagram (below) represents how the end of form will move in relation to the fixed card position as a positive or negative Print End of Form value is entered.

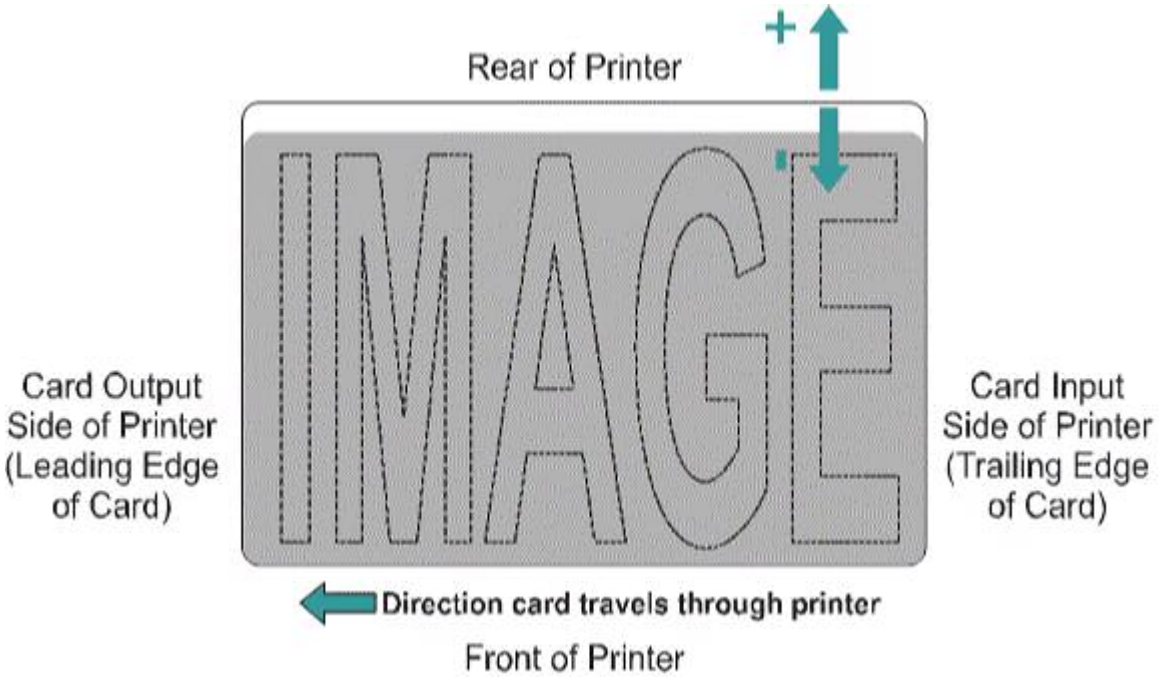
| Step | Procedure |
|---|---|
| 1 | Enter a negative value to reduce the Print End of Form and move the end of the printable area more toward the leading edge of the card.<br>**OR**<br>Enter a positive value to increase the print length and move the end of the printable area more toward the trailing edge of the card.<br>• **Maximum Adjustment Range:** The maximum adjustment range is ±127. As a rule, 10 equals about .030"/. 8mm, which is about the same as the thickness of a standard CR-80 size card.) |



## Using the Print Left of Form Option

Use this option to adjust the vertical position of the printed image on a card so it appears centered. (**Note:** When adjusting this value, keep in mind that cards always remain in the same landscape orientation while moving through the Printer.)

| Step | Procedure |
|---|---|
| 1 | Enter a negative value to move the image towards the bottom edge of the card (See image below),<br>**OR**<br>Enter a positive value to move the image towards the back top edge of the card (see image below).<br>• **Maximum Adjustment Range:** The maximum adjustment range is ±127. As a rule, 10 equals about .030"/. 8mm. This is about the same as the thickness of a standard CR-80 size card. |



## Using the Magnetic Encoder Voltage Offset Option

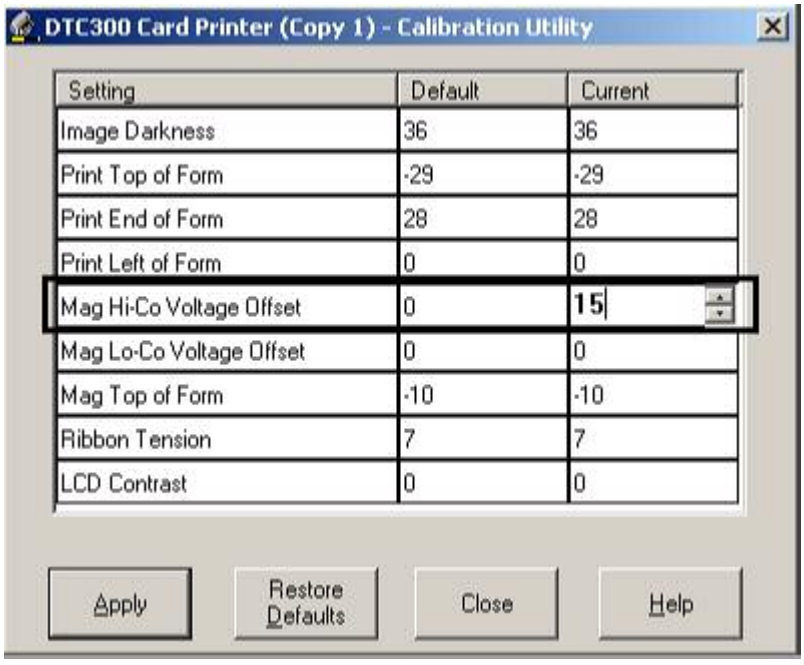
Use this option to adjust the voltage of the Magnetic Encoder.

- Encoder voltage is set from the factory at a default of 7.24vdc for Hi-Co Magnetic cards and 2.54vdc for Lo-Co Magnetic cards.
- Depending on the cards that are being used, it may be necessary to adjust the encoder voltage out of default.

See the next two procedures for instructions on adjusting the Magnetic Encoder Voltage. (**Note:** The required encoder voltage for the cards will need to be known in order to properly set the Encoder Voltage Offset value. This information should be available through the card manufacturer or reseller).

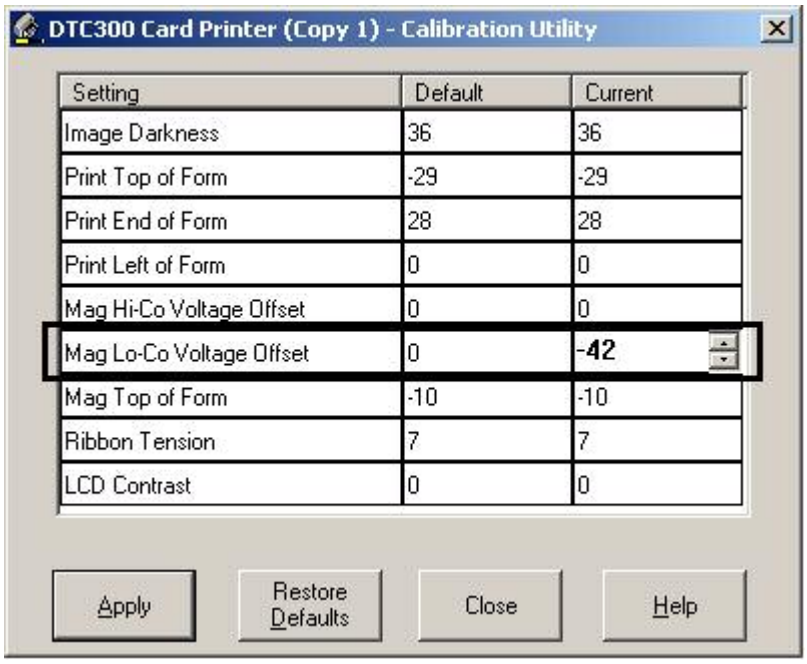
## Adjusting the Hi-Co Voltage Offset

| Step | Procedure |
|---|---|
| 1 | Identify the Magnetic Encoder voltage required by the cards. (**Note:** The required encoder voltage for the cards will need to be known in order to properly set the Encoder Voltage Offset value. This information should be available through the card manufacturer or reseller). |
| 2 | Use the following equation to identify the proper Mag Hi-Co Voltage Offset value<br>• ((((36500/(((**<Desired Voltage>**+4.6)/1.23)-1))-2670)/39.0625) – 40)X-1<br>**For example:**<br>Required Encoder Voltage = 9vdc<br>• ((((36500/(((**9**+4.6)/1.23)-1))-2670)/39.0625) – 40)X-1 = **15** |
| 3 | Change the Mag Hi-Co Voltage Offset value.<br>I.E **15** |
| 4 | Use the Diagnostic Utility to run a Magnetic Self test and verify encoded quality. |



## Adjusting the Lo-Co Voltage Offset

| Step | Procedure |
|---|---|
| 1 | Identify the Magnetic Encoder voltage required by the cards. (**Note:** The required encoder voltage for the cards will need to be known in order to properly set the Encoder Voltage Offset value. This information should be available through the card manufacturer or reseller). |
| 2 | Use the following equation to identify the proper Mag Lo-Co Voltage Offset value<br>• ((((36500/(((**<Desired Voltage>**+4.6)/1.23)-1))-2670)/39.0625) – 126)X-1<br>**For example:**<br>Required Encoder Voltage = 1.5vdc<br>• ((((36500/(((**1.5**+4.6)/1.23)-1))-2670)/39.0625) – 126)X-1 = **-42** |
| 3 | Change the Mag Lo-Co Voltage Offset value.<br>I.E -**42** |
| 4 | Use the Diagnostic Utility to run a Magnetic Self test and verify encoded quality. |



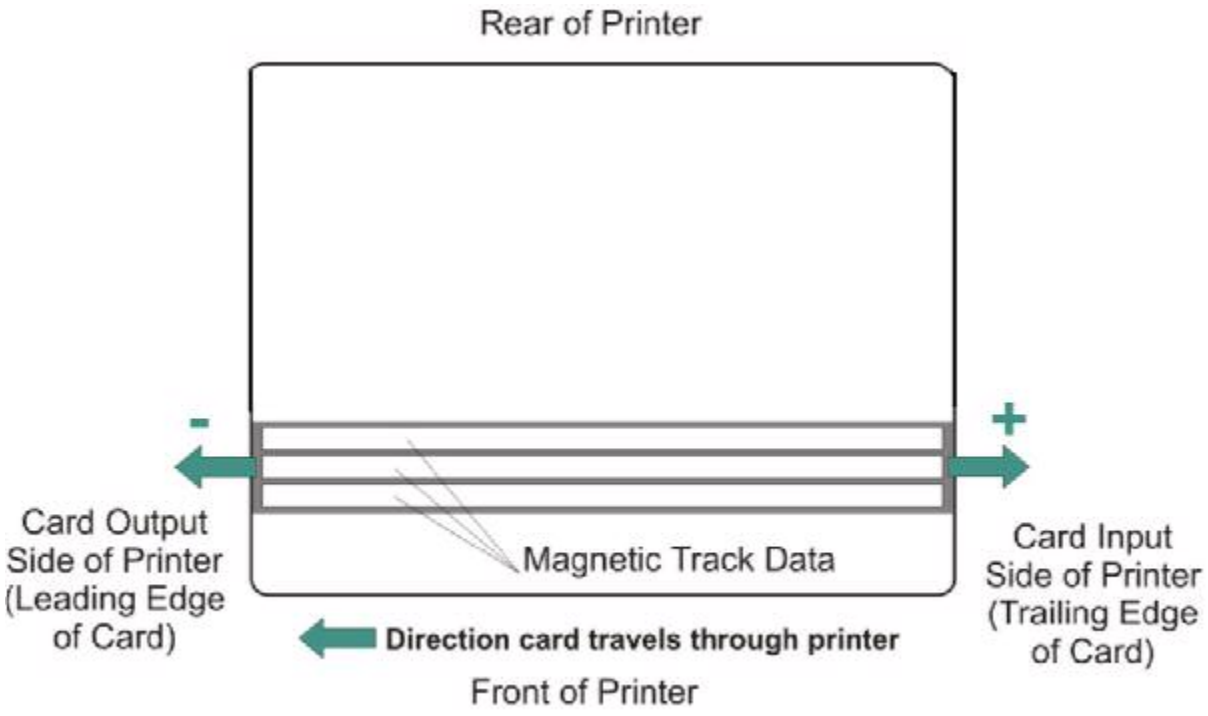
## Using the Mag Top of Form Option

Use this option only if the Printer has a built-in Magnetic Stripe encoder. (**Note:** If so, use this option to shift the starting point of where the Printer will begin encoding the magnetic track data on a card's Magnetic Stripe. When adjusting this value, keep in mind that a card and its Magnetic Stripe will always remain in the same relative position as the card travels through the Printer.)

The diagram (below) represents how the magnetic data will move in relation to the fixed position of a card's Magnetic Stripe as a positive or negative Magnetic Offset value is entered. (**Note:** For this diagram, imagine that the card is transparent and the card's Magnetic stripe can be seen through the top or front side of the card.)

| Step | Procedure |
|---|---|
| 1 | Enter a negative value to move the start of the magnetic data more toward the leading edge of the card, or the card output to the side of the Printer.<br>**OR**<br>Enter a positive value to move the start of the magnetic data toward the trailing edge of the card, or the card input to the side of the Printer.<br>• **Magnetic Data Direction:** The arrows on these buttons indicate the direction the magnetic data will move on the card's Magnetic Stripe.<br>• **Maximum Adjustment Range:** The maximum adjustment range is ±127. As a rule, 10 equals about .030"/. 8mm.) (**Note:** Keep this in mind when adjusting this option to avoid over-adjusting.)<br>  **Caution:** If the negative value is set too high, the Printer may start encoding before the card's Magnetic Stripe reaches the encoding head. |

## Using the Mag Top of Form Option (continued)



## Using the Ribbon Tension Option

| Step | Procedure |
|---|---|
| 1 | Use the Ribbon Tension option to increase the amount of tension (drag) on the ribbon during printing.<br>Enter a negative value to decrease the amount of tension that is placed on the ribbon during printing<br>**OR**<br>Enter a positive value to increases the amount of tension that is placed on the ribbon during printing. |

## Using the LCD Contrast Option

Use this option to adjust the contrast of the LCD.

| Step | Procedure |
|---|---|
| 1 | Enter a positive value to increase the contrast of the LCD display on the front of the Printer.<br>**OR**<br>Enter a negative value to decrease the contrast of the LCD display on the front of the Printer. |

# Section 6: Cleaning

The Card Printer is built to require a minimum amount of maintenance. Nevertheless, there are a few procedures you can perform on a regular basis or as needed to ensure the best possible performance

## Table of Contents

# Safety Messages (review carefully)

| Symbol | Critical Instructions for Safety purposes |
|---|---|
| **Danger:**  | **Failure to follow these installation guidelines can result in death or serious injury.**<br>Information that raises potential safety issues is indicated by a warning symbol (as shown to the below).<br>• **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol.<br>• **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified.<br>• **To prevent personal injury**, make sure only qualified personnel perform these procedures. |
| **Caution:**  | **This device is electrostatically sensitive. It may be damaged if exposed to static electricity discharges.**<br>Information that raises potential electrostatic safety issues is indicated by a warning symbol (as shown to the below).<br>• **To prevent equipment or media damage**, refer to the following safety messages before performing an operation preceded by this symbol.<br>• **To prevent equipment or media damage**, observe all established Electrostatic Discharge (ESD) procedures while handling cables in or near the Circuit Board and Printhead Assemblies.<br>• **To prevent equipment or media damage**, always wear an appropriate personal grounding device (e.g., a high quality wrist strap grounded to avoid potential damage).<br>• **To prevent equipment or media damage**, always remove the Ribbon and Cards from the Printer before making any repairs, unless otherwise specified.<br>• **To prevent equipment or media damage**, take jewelry off of fingers and hands, as well as thoroughly clean hands to remove oil and debris before working on the Printer. |

## Using the Required Supplies

For the maintenance procedures outlined for the Printer, you will need a Printer Cleaning Kit, available from the reseller. This kit includes the following:

- Printhead Cleaning Swabs pre-moistened with 99.99% isopropyl alcohol for cleaning the Printer's Printhead.
- Cleaning Cards with an adhesive backing for cleaning the Printer's Card Feed Rollers and Platen Roller.
- Cleaning Pads pre-moistened with 99.99% isopropyl alcohol for cleaning the Printer's general inside and outside area.

 **Caution:** As with any electronic device, internal components of the Printer, such as the Printhead, may be damaged if exposed to static electrical discharges.

- To avoid potential damage, always wear an appropriate personal grounding device, such as a wrist strap (with integral resistor) connected to an ESD ground.

# Cleaning Procedures

## Cleaning the Printhead

Perform this procedure during every **1000 prints** to maintain consistent print quality. Also, perform this procedure after noticing a streak on the card where color was not transferred.

**Warning:** Never use a sharp tool or abrasive object of any kind to clean the Printhead, which can damage it.

| Step | Procedure |
|---|---|
| 1 | Open the Printer's Front Cover. |
| 2 | Remove print ribbon |
| 3 | Use a **Printhead Cleaning Swab** from the Printer Cleaning Kit (P/N 085976) to gently rub back and forth over the entire length of the printhead 3 to 4 times |
| 4 | Once the Printhead is completely dry, replace the ribbon cartridge and close the Printer.<br>**Caution:** If a streak persists, use an Acetone compound to clean the Printhead. |

## Cleaning the Card Feed and Cleaning Rollers

The Card Feed Rollers move the card throughout the print process. The Cleaning Roller removes dust particles from a blank card as it feeds into the Printer. Cleaning these Rollers will help prevent card jams and card contamination and will ultimately lead to better print quality and extended Printhead life.

| Step | Procedure |
|---|---|
| 1 | Ensure a consistent Printer operation by cleaning these Rollers approximately every **1000 prints**, depending on the cleanliness of the card stock and the environment (in which the Printer is located).<br>Clean the Rollers if the Rollers appear dirty or if the cards start showing speckles or debris on the printed surface by following Steps 2 to 7 (below). |
| 2 | Leave the Printer power ON and open the Printer's Front Cover. |
| 3 | Remove all cards from the Printer's Card Input Hopper. |
| 4 | Get a Cleaning Card from the Printer Cleaning Kit and remove its adhesive backing paper from both sides. |
| 5 | Insert the Cleaning Card into the card exception Single Feed Slot until the card stops. |
| 6 | a. Open the Printer Control Panel from the Computer.<br>• If using Windows 98SE/Me, right click on the DTC400/DTC300/DTC300M Card Printer Icon and select **Properties**.<br>• If using Windows 2000/XP, right click on the DTC400/DTC300/DTC300M Card Printer and select **Printing Preferences**. Click on the Calibrate tab.<br>b. Click on the **Clean Printer** button. (See below.)<br>c. Remove the Ribbon and close the front cover.<br>d. Click on the **Clean** button. |

## Cleaning the Printer's Exterior

The Printer has a durable casing that should retain its luster and appearance for many years. Clean it only with a **Cleaning Pad** from the Printer Cleaning Kit.

 **Caution:** Do not use cleaning solvents of any kind or spray the printer's exterior with a cleaner!

## Cleaning the Printer's Interior

Dust and other particles may accumulate inside the Printer with continued usage. These particles are attracted to the print Ribbon or blank card by static produced during printing and can contaminate the printed card causing spots or speckles to appear. Periodically, use the following procedure to remove dust and other contaminants:

| Step | Procedure |
|---|---|
| 1 | Open the Printer's Front Cover. |
| 2 | Remove the Ribbon Cartridge from the Printer. |
| 3 | Use a **Cleaning Pad** from the Printer Cleaning Kit to wipe out all visible areas inside the Printer. Remove any debris that may be inside. Be extremely careful not to let any alcohol drip inside the Printer! |
| 4 | Re-install the printing supplies and close the Printer. |

# Section 7: Parts Replacement

Refer to the appropriate User Guide for this printer for this section.

# Section 8: Packing the Card Printer

The purpose of this section to provide the User with a specific packing procedure for this Card Printer.

## Table of Contents



Follow this instruction to pack the Card Printer for transport.

| Step | Procedure |
|---|---|
| 1 | Clean the inside of the Printer with compressed air. |
| 2 | Wipe it down with a lint-free cloth. |
| 3 | Clean the Printhead with a alcohol swab. |
| 4 | Pack the Printer in the original carton and packing materials. |
| 5 | Ensure to enclose any necessary paperwork, test cards, etc. |

# Section 9: Board Level Diagnostics

The purpose of this section to provide the User with specific Board Level Diagnostic procedures for Board Errors and Sensor Testing for this Card Printer.

## Table of Contents

# Safety Messages (review carefully)

| Symbol | Critical Instructions for Safety purposes |
|---|---|
| **Danger:**  | **Failure to follow these installation guidelines can result in death or serious injury.**<br>Information that raises potential safety issues is indicated by a warning symbol (as shown to the below).<br>• **To prevent personal injury**, refer to the following safety messages before performing an operation preceded by this symbol.<br>• **To prevent personal injury**, always remove the power cord prior to performing repair procedures, unless otherwise specified.<br>• **To prevent personal injury**, make sure only qualified personnel perform these procedures. |
| **Caution:**  | **This device is electrostatically sensitive. It may be damaged if exposed to static electricity discharges.**<br>Information that raises potential electrostatic safety issues is indicated by a warning symbol (as shown to the below).<br>• **To prevent equipment or media damage**, refer to the following safety messages before performing an operation preceded by this symbol.<br>• **To prevent equipment or media damage**, observe all established Electrostatic Discharge (ESD) procedures while handling cables in or near the Circuit Board and Printhead Assemblies.<br>• **To prevent equipment or media damage**, always wear an appropriate personal grounding device (e.g., a high quality wrist strap grounded to avoid potential damage).<br>• **To prevent equipment or media damage**, always remove the Ribbon and Cards from the Printer before making any repairs, unless otherwise specified.<br>• **To prevent equipment or media damage**, take jewelry off of fingers and hands, as well as thoroughly clean hands to remove oil and debris before working on the Printer. |

# Sensor and Motor

## Reviewing the Sensor Location and Voltages

Use this table as a reference tool for Board Level Diagnostics

| Sensor | Location | Pin | Low Range VDC | High Range VDC |
|---|---|---|---|---|
| RFID Board | J5 | 3 | Present .02 | Not Present .70 |
| Headlift | J9 | 1, 3 (+, -) | Not Depressed 0 - .17 | Depressed 4.9 – 5.5 |
| Print Cover Sensor (Sensor mounted to Main Board) | J4 | 1, 2 (+, -) | Not Depressed 0 - .17 | Depressed 4.9 – 5.5 |
| Print Ribbon Encoder Sensor | J4 | 3,4 (+, -) | Unblocked 0 -.17 | Blocked 4.9 – 5.5 |
| Card Detection Sensor | J4 | | Unblocked 0 -.17 | Blocked 4.9 – 5.5 |

## Reviewing the Motor Voltages (when active)

Use this table as a reference tool for Board Level Diagnostics

| Motor | Location | Pin | VDC |
|---|---|---|---|
| Print Drive Stepper | J3 | 4 | 4 |
| Print Headlift | J20 | 6 | 17.0 |
| Ribbon Drive | J20 | 8 | 5 |

# Section 10: Diagnostic Tool Utility

The Fargo Diagnostics Utility is designed to provide access to the following:

- The diagnostic capabilities of the Printer.
- The internal Self Tests of the Printer.
- The testing options for Magnetic and E-card encoding options.

The set of sample images to test the Printer's operation.

## Table of Contents

# Using the Diagnostic Tool Utility

## Selecting from the Printer Selection menu

| Step | Procedure |
|---|---|
| 1 | Click on the dropdown Printer selection menu to view a list of currently installed Fargo Printer Drivers installed on the computer. |
| 2 | Select the Printer that is going to be tested, as shown below. |

## Reviewing customized Diagnostic Utility tabs for your Printer

| Step | Procedure |
|---|---|
| 1 | Select a Printer from the Printer Selection menu that will customize the tabs that are available. (**Note:** Only the Diagnostic Utility tabs for the selected Printer will be shown. For example, the Lamination tab will not be shown if the Printer does not have Lamination capabilities.) |

# Using the Diagnostic Utility tabs

## Selecting the Print Spooler tab in the Diagnostics Utility

| Step | Procedure |
|---|---|
| 1 | Select the Print Spooler tab, as shown below. |

## Selecting the Print Spooler tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 2 | Click on the **Select File** button to bring up the Browse for Print File window, as shown below and on the next page. |

## Selecting the Print Spooler tab in the Diagnostics Utility (continued)

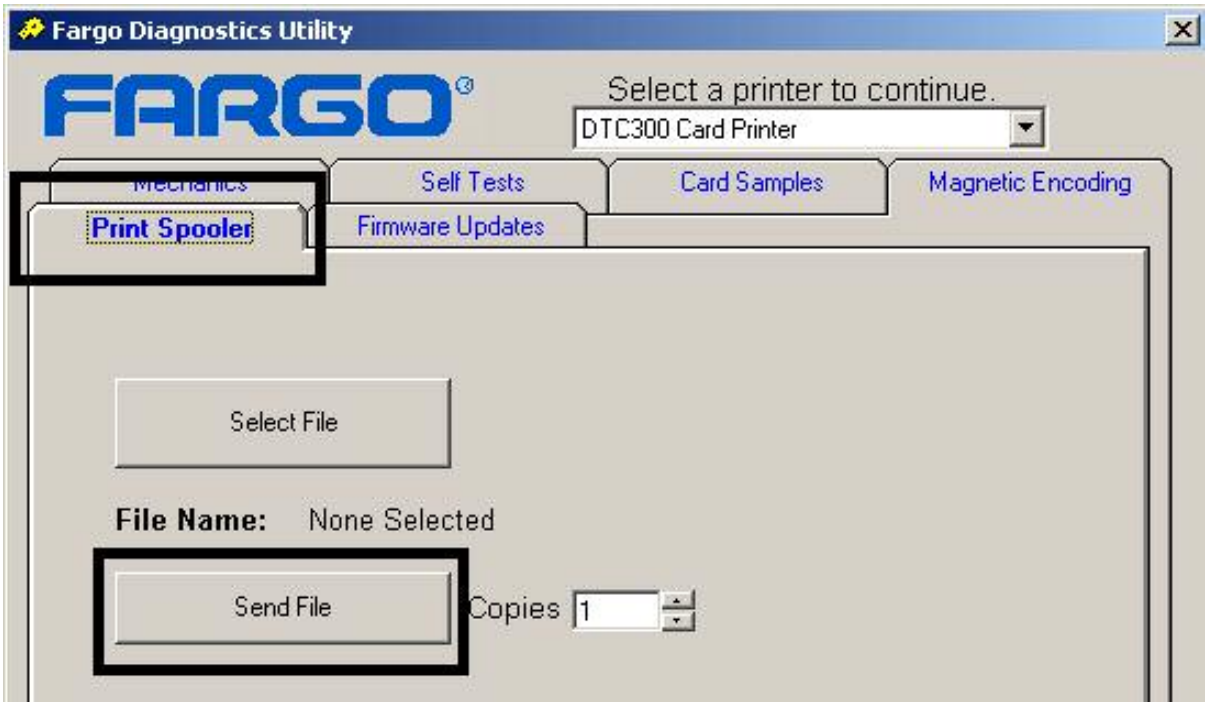
| Step | Procedure |
|---|---|
| 3 | a. Click on the **Browse** button to browse through an open file dialog box, as shown below.<br>b. Select the Print File (.PRN) that is to be sent to the Printer. |


## Selecting the Print Spooler tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 4 | Select the number of copies to be printed, as shown below. |

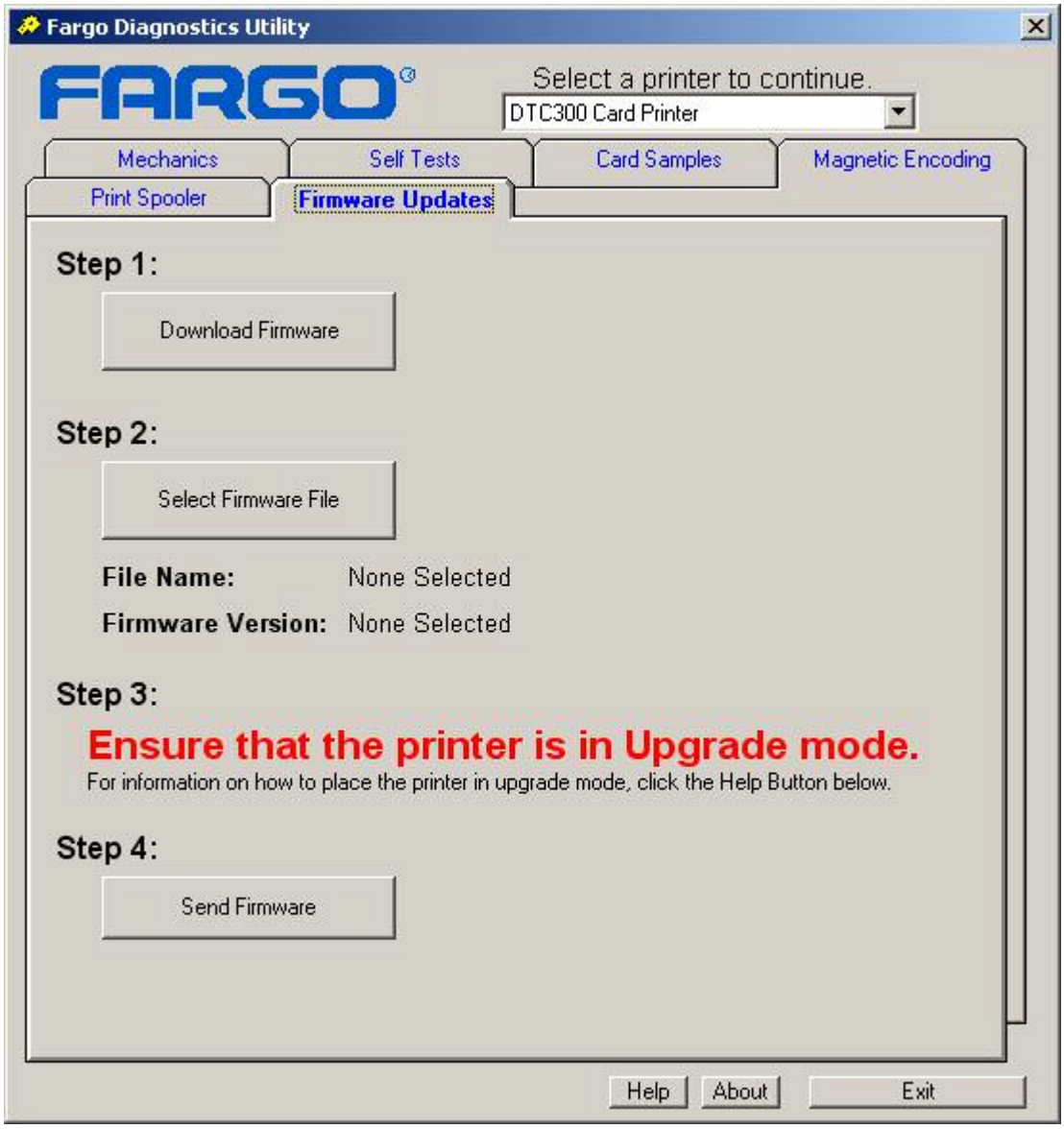
## Selecting the Print Spooler tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 5 | Click on the **Send File** button in order to send the selected Print Files (.PRN) to the Printer. |



## Selecting the Firmware Updates tab in the Diagnostics Utility

| Step | Procedure |
|---|---|
| 1 | Select the Firmware Updates tab, as shown below. |



## Downloading Firmware Updates

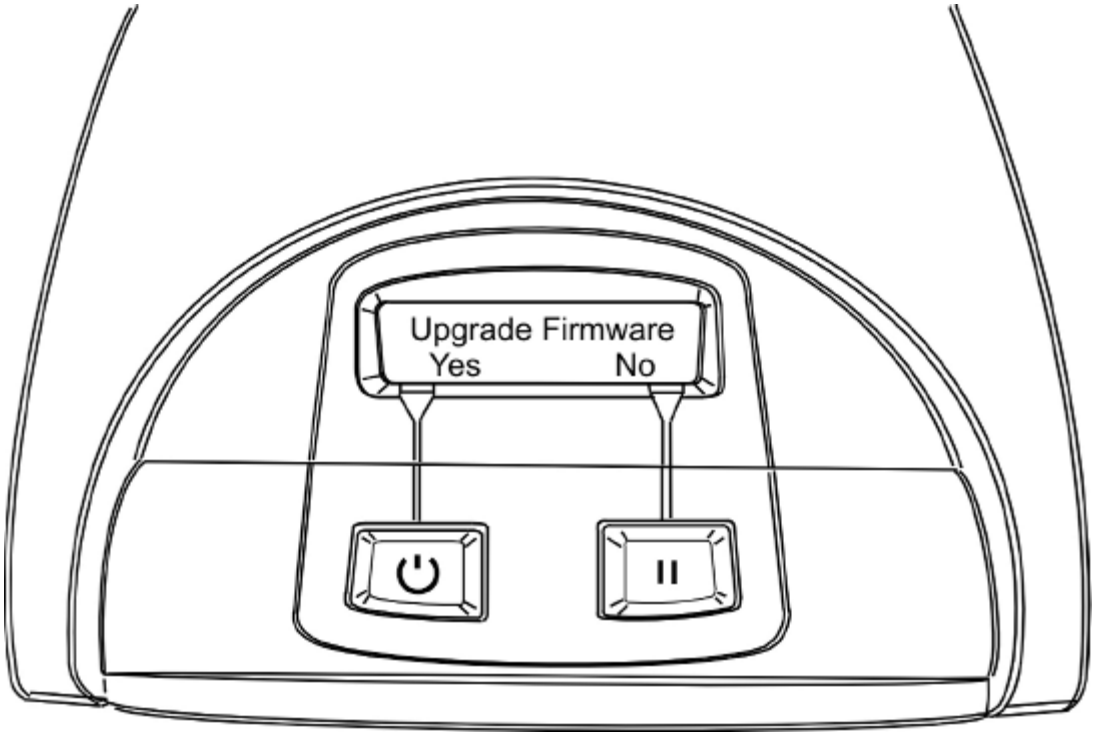
| Step | Procedure |
|---|---|
| 1 | Select the **Download Firmware** button. If you have Internet access, this will automatically take you to the Firmware Updates section of the Fargo website. If it does not, manually open your browser and go to the Firmware Updates section in the Fargo Electronics Technical Support Web site:<br>http://www.FargoSupport.com/ |
| 2 | Select your specific Printer model and click on the **Submit** button. Click on the Firmware file link labeled for the specific Printer model. |
| 3 | Click on **OK** when prompted to Save this Program to Disk and then select a folder in which to save the Update file. |
| 4 | a. Once the file has been downloaded, navigate to the location where the file was saved. (**Note:** The Firmware Update file has been compressed for ease of downloading.)<br>b. Decompress the file by double-clicking on the designated icon. |

## Selecting the Firmware File

| Step | Procedure |
|---|---|
| 1 | Select the Select Firmware File to open a Browse Dialog Box. |
| 2 | Browse to the location where the firmware file is located. |
| 3 | Click on the **OK** button. |
| 4 | The file name and Firmware Version will be displayed below. |

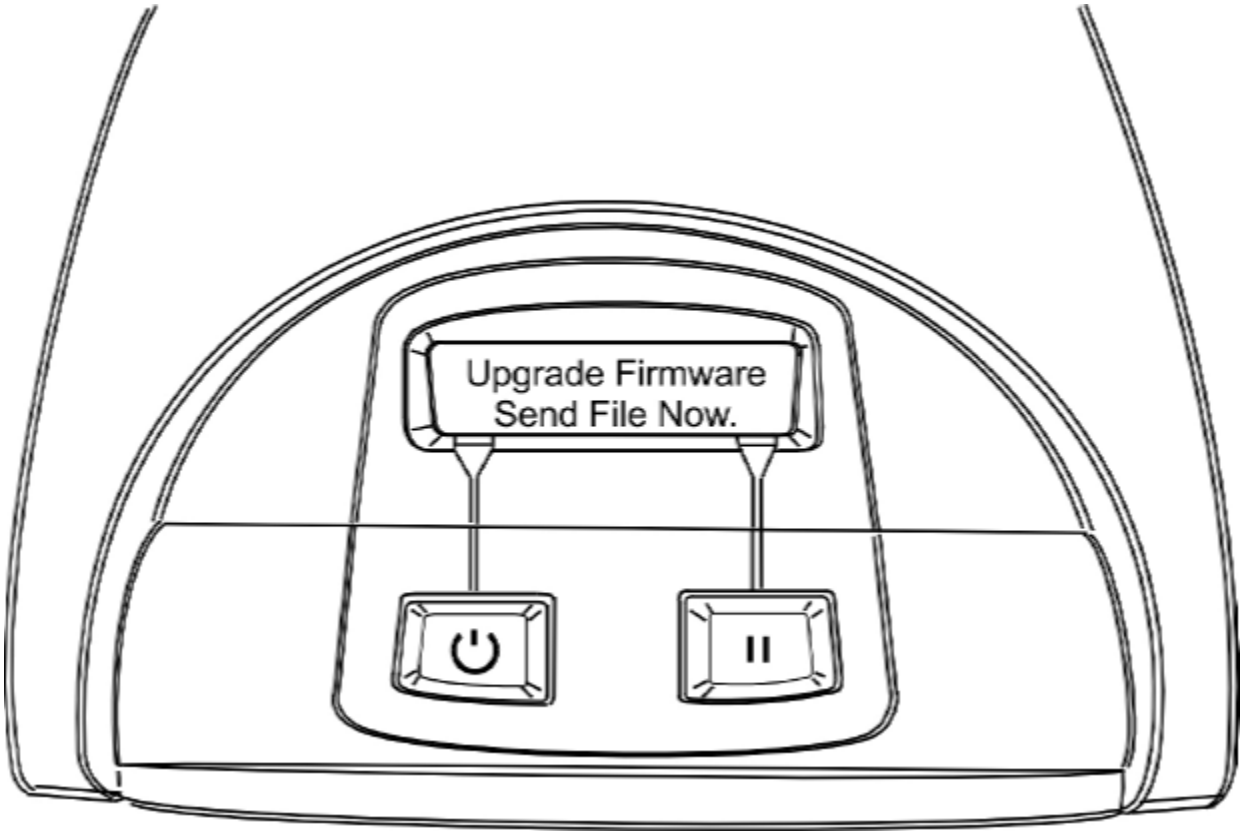
## Placing the Printer in the Upgrade Mode

| Step | Procedure |
|---|---|
| 1 | Disconnect Power from the Printer. |
| 2 | Press and hold down the power and pause buttons on the Printer. |
| 3 | Reapply power to the Printer. (**Note:** The LCD display should now show Upgrade Firmware.) |
| 4 | Press the **Yes** button on the LCD to continue. |



## Sending the Firmware File

| Step | Procedure |
|---|---|
| 1 | Ensure that the firmware File is selected. |
| 2 | Ensure that the Printer LCD says Upgrade Firmware Send File Now. |
| 3 | Click on the **Send Firmware** button. |
| 4 | Upon successful completion of the firmware update, the Printer will restart. |

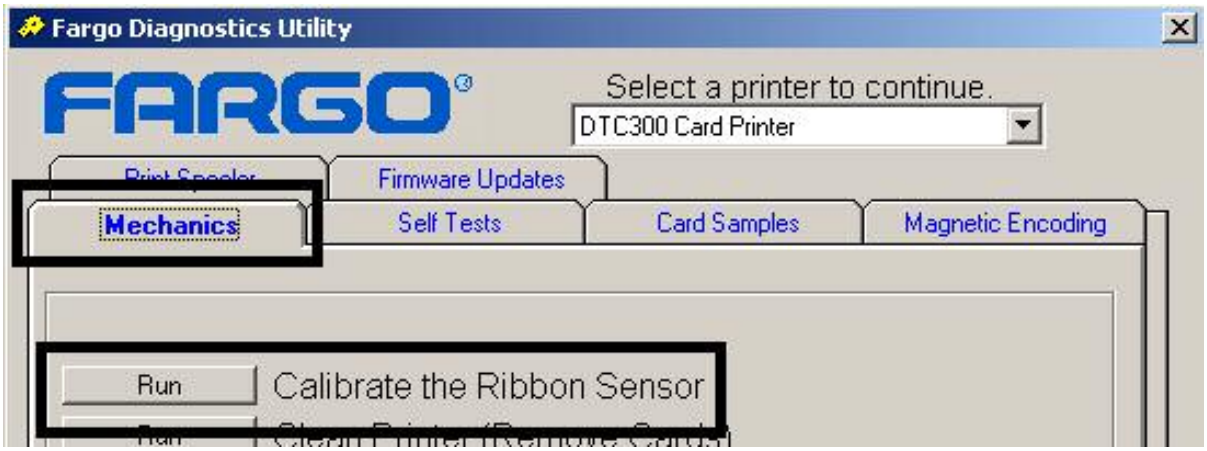


## Selecting the Mechanics tab in the Diagnostics Utility

| Step | Procedure |
|---|---|
| 1 | a. Select the Mechanics tab to test Motors and Sensors in the Printer. (**Note:** This section has a procedure for each function by a **Run** button, as shown below.)<br>b. See the entire **Selecting the Mechanics tab in the Diagnostics Utility** section for related sub-procedures (Steps 2A to 2G). |

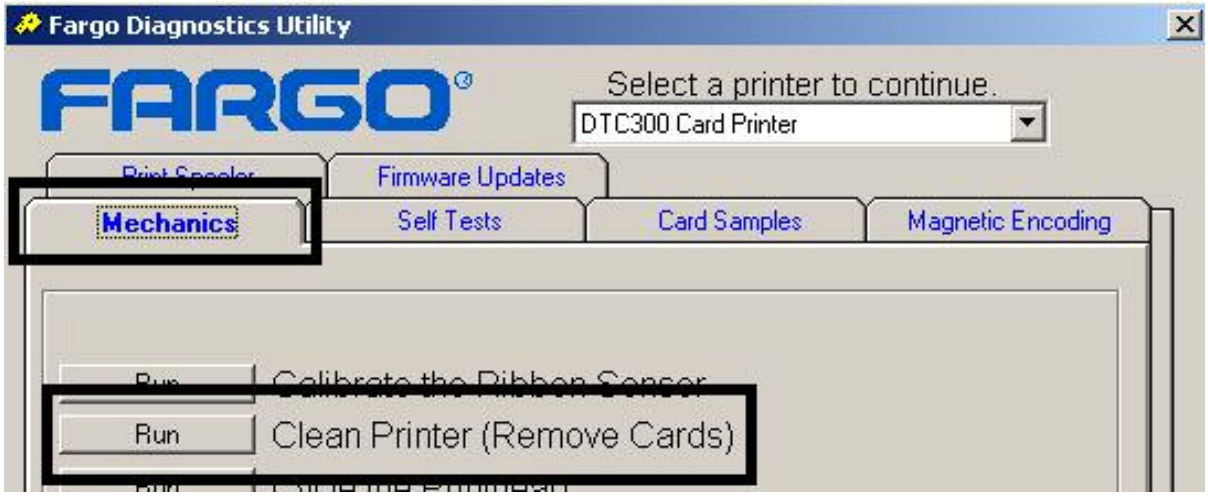
## Selecting the Mechanics tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 2A | Click on the **Calibrate the Ribbon Sensor** button to calibrate the Print Ribbon. (**Note:** This will ensure proper operation of the Ribbon Sensing systems.) |



## Selecting the Mechanics tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 2B | Click on the **Clean Printer (Remove Cards)** button to activate the function. See the Running the Magnetic Self Test (HiCo Only) procedure on page 4-53. |



## Selecting the Mechanics tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 2C | Click on the **Cycle the Printhead** button to verify operation of the Printhead Headlift Motor and Headlift Sensor. (**Note:** When selected, the Printhead should cycle up and down.) |

## Selecting the Mechanics tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 2D | Click on the **Advance the Stepper Motor** button to move the Card Rollers forward in the Printer. |

## Selecting the Mechanics tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 2E | Click on the **Reverse the Stepper Motor** button to move the Card Rollers backwards in the Printer. |

## Selecting the Mechanics tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 2F | Click on the **Cycle the Card Input Roller (Remove Cards)** button to activate the Card Input Motor. (**Note:** Ensure that all cards have been removed from the Printer before selecting this option.) |

## Selecting the Mechanics tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 2F | Click on the **Advance the Ribbon Motor (Remove Ribbon)** button to |

## Selecting the Mechanics tab in the Diagnostics Utility (continued)

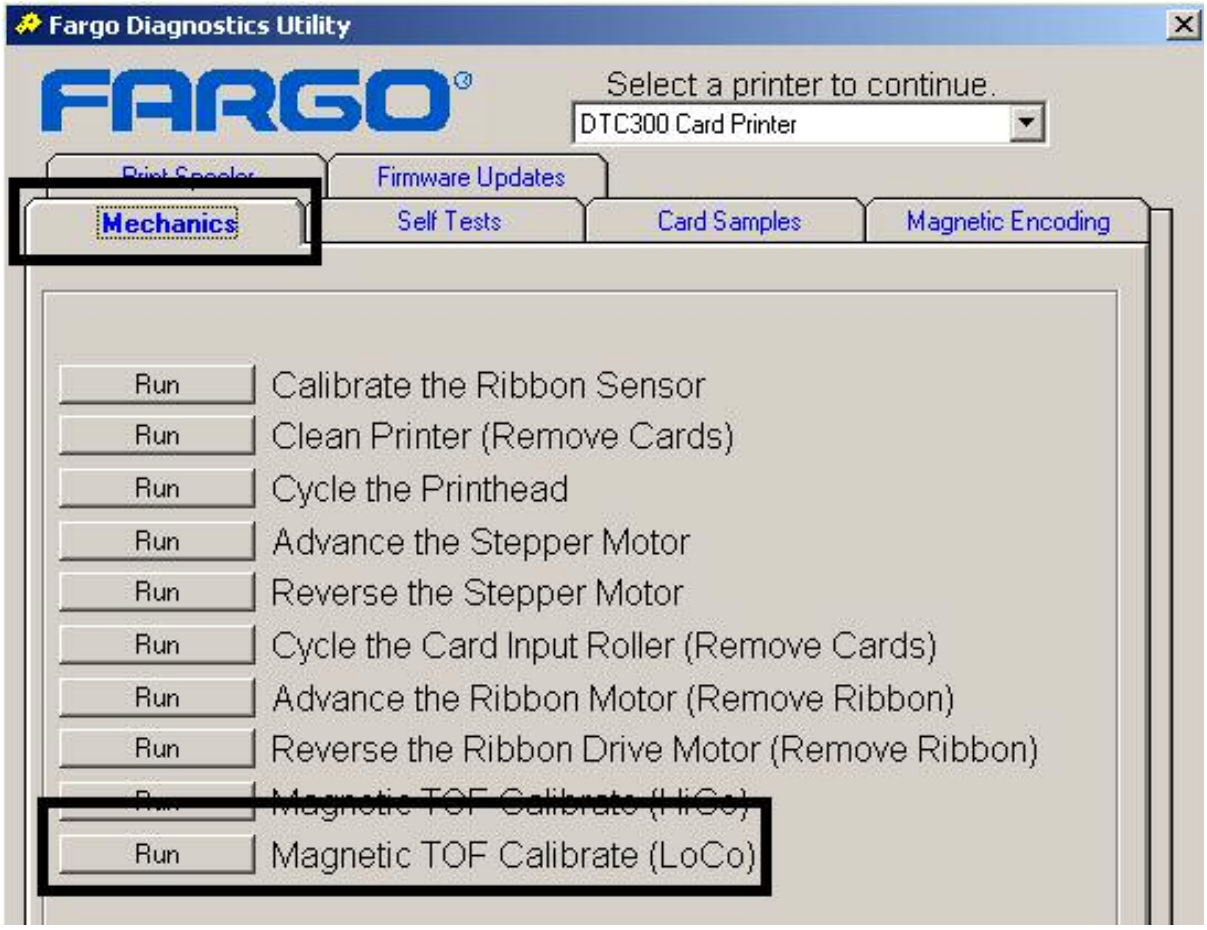
| Step | Procedure |
|---|---|
| 2G | Click on the **Reverse the Ribbon Drive Motor (Remove Ribbon)** button to |

## Selecting the Mechanics tab in the Diagnostics Utility (continued)

| Step | Procedure |
|---|---|
| 2H | Click on the **Magnetic TOF Calibrate (HiCo)** button to |

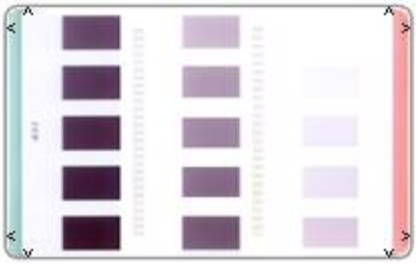
## Selecting the Mechanics tab in the Diagnostics Utility (continued)

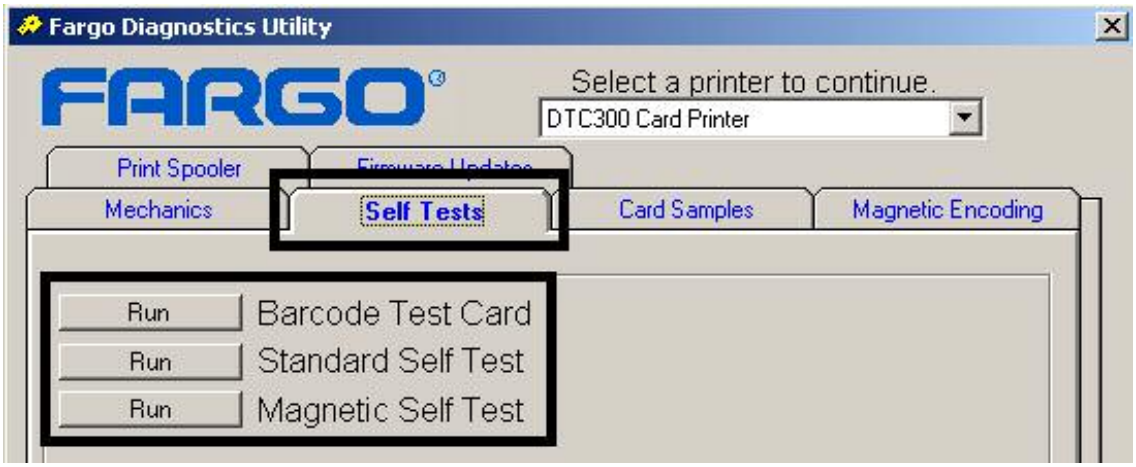
| Step | Procedure |
|---|---|
| 2l | Click on the **Magnetic TOF Calibrate (LoCo)** button to |



## Selecting the Self Tests tab in the Diagnostics Utility

Use these options to run the internal Printer Self Tests.

| Step | Procedure |
|---|---|
| 1 | Select the appropriate **Run** button to execute either the Barcode Test Card, the Standard Self Test or the Magnetic Self Test, as shown below. (**Note:** These options apply to the DTC400, DTC300 and DTC300M Printers).<br>• Click on the **Barcode Test Card** button to test the resin printing capabilities of the Printer (**Note:** A full color ribbon (YMC) with a resin panel (K) or a resin ribbon is required for this test.)<br>• Click on the **Standard Self Test** button to determine Image Placement and confirm that the Printer is working properly. (**Note:** The image consists of fifteen (15) gray scale boxes. The gray boxes are composed from a composite of YMC color panels.)<br>  <br>• Click on the **Magnetic Self Test** button to test the Magnetic Encoding capabilities of the Printer. (**Note:** Be sure to have magnetic stripe cards installed in your Printer when running this test.) |



## Selecting the Card Samples tab in the Diagnostics Utility

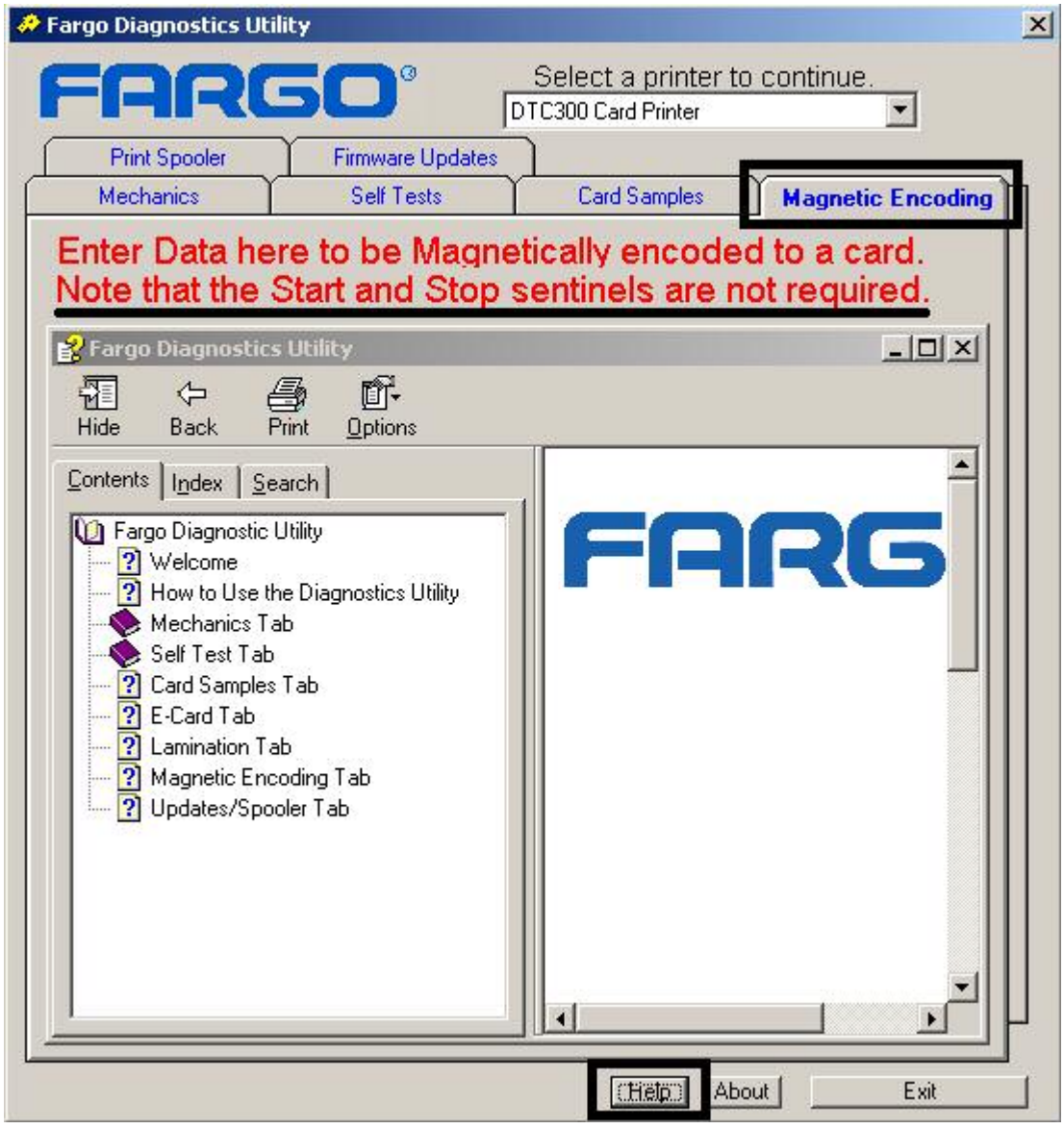
| Step | Procedure |
|---|---|
| 1 | a. Select the Card Samples tab to print sample images from the Printer.<br>b. Select the desired Image, as shown below. (**Note:** You will see the enlarged Image after you select it from several options.)<br>c. Check the settings defined in your Driver before printing your selection.<br>d. Click on the **Print** button when you are ready, as shown below. (**Note:** The default Card Size is CR-80, a shown below.) |

## Selecting the Magnetic Encoding tab in the Diagnostics Utility

| Step | Procedure |
|---|---|
| 1 | a. Select the Magnetic Encoding tab to test the Magnetic Encoding capabilities of the Printer.<br>b. Click on the **Auto Fill Track Data** button to automatically fill in Track 1, Track 2 and Track 3.<br>c. Click on the **Encode** button to encode the data. Click on the **Clear** button to clear existing data from Track 1, Track 2 and Track 3. |

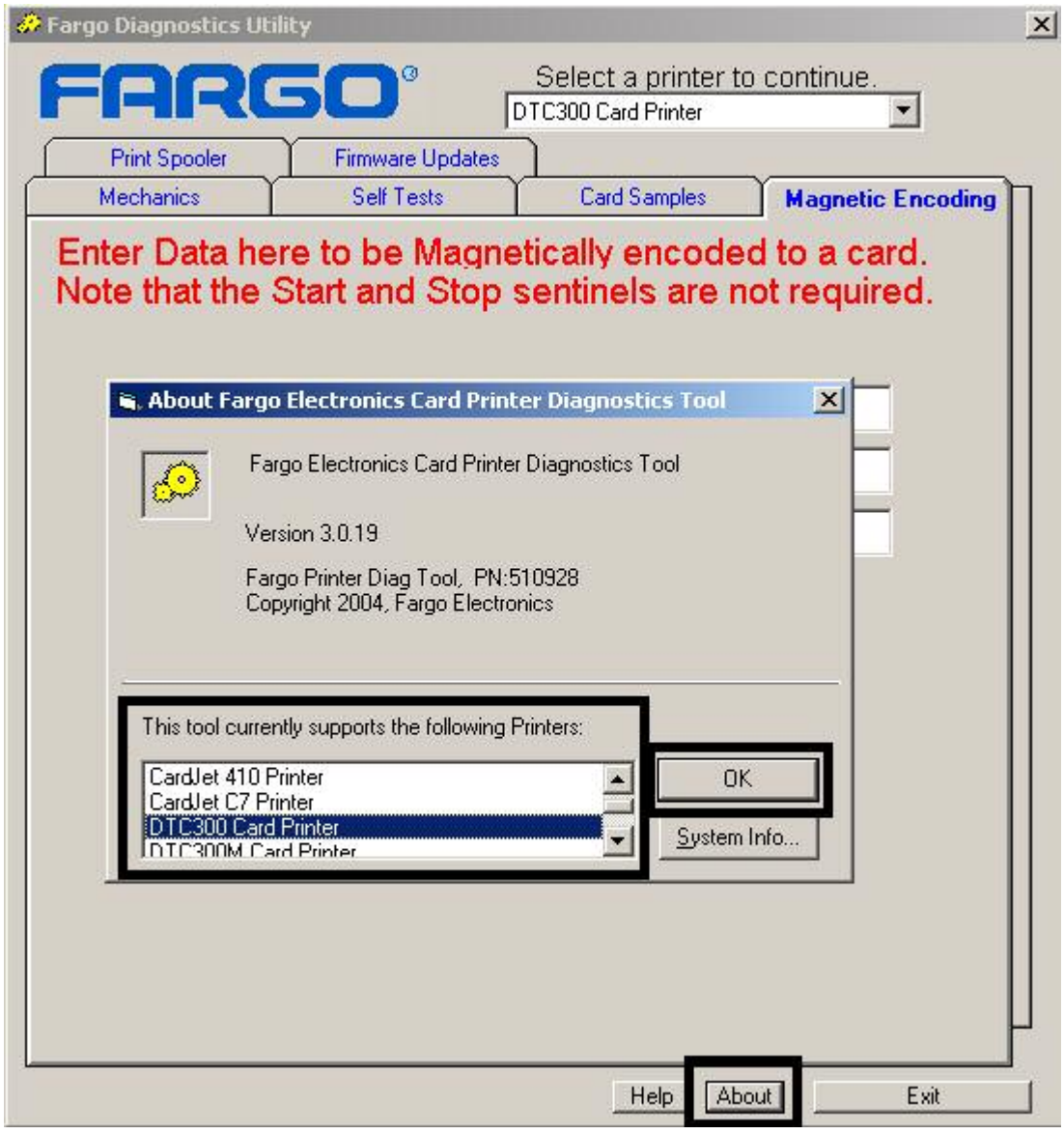
## Selecting the Help button in the Diagnostics Utility

| Step | Procedure |
|---|---|
| 1 | Select the **Help** button to access the Fargo Diagnostics Utility Help document, as shown below. |



## Selecting the About button in the Diagnostics Utility

| Step | Procedure |
|---|---|
| 1 | Select the **About** button to access version information for the Diagnostics tool. (**Note:** A list of the Printers that the Diagnostic Utility supports is also available.) |



## Selecting the Exit button in the Diagnostics Utility

| Step | Procedure |
|---|---|
| 1 | Select the **Exit** button to close out and exit from the Fargo Diagnostics Utility. |

# Section 11: Firmware Upgrades

See Firmware Updates in Section 8: Diagnostic Tool Utility.

# Section 12: Fargo Technical Support

The purpose of this section to provide the User with an efficient, step-by-step procedure to be used when contacting Fargo Technical Support as needed for this Card Printer.

## Table of Contents



## Contacting Fargo Technical Support

| Step | Procedure |
|---|---|
| 1 | Refer to Section 3: General Troubleshooting as needed.<br>Contact the Fargo Technical Support Group by phone at (952) 941-0050 or by fax at (952) 941-1852 for additional technical assistance.<br>**OR**<br>Contact Fargo Technical Support via the Web:<br>http://www.fargosupport.com |
| 2 | Position a phone near the Printer and Computer so Fargo technicians can help to help troubleshoot the Printer(s). |
| 3 | Please have a self-test and a sample card ready when calling Fargo Technical Support. |

# Reading the Serial Numbers on a Fargo Printer

The purpose of this section is to provide updated instructions for reading serial numbers on a Fargo Printer.

## Finding out when a Fargo Card Printer was manufactured

You can determine when your card Printer was manufactured by reading directly from the serial number (affixed to your card Printer).

1. **Year Built:** The first two digits in the serial number indicate the year that the Printer was manufactured.
2. **Week Built:** The second two digits indicate the week.
3. **Numeric Order:** The last four digits indicate the sequence number for the numeric order in which the Printers were built.

## Reviewing Example No. 1: Serial Number 80453289

1. **80453289:** The first two digits in the serial number indicate the year the Printer was built (e.g., the digits 80 indicate the year 1998).
2. **80453289:** The third and fourth digits in the serial number indicate the week the Printer was built (e.g., the digits 45 indicate week 45 of that year).
3. **80453289:** The last four digits indicate the sequence number for the numeric order in which the Printers were built.

## Reviewing Example No. 2: Serial Number A1280224

1. **A1280224:** The first two digits in the serial number indicate the year the Printer was built (e.g., the letter and digit A1 indicate the year 2001).
2. **A1280224:** The third and fourth digits in the serial number indicate the week the Printer was built (e.g., the digits 28 indicate week 28 of that year).
3. **A1280224:** The last four digits indicate the sequence number for the numeric order in which the Printers were built.

# Section 13: Reviewing the Spare Parts List

## Reviewing the DTC400/DTC300/DTC300M Spare Parts List

**DTC400/DTC300/DTC300M ID Card Printer**
**Recommended Spare Parts List**
**Effective Date: June 2004**
**For current pricing see** http://www.fargopartner.com/support_services/

# Section 14: Glossary of Terms

| Term | Definition |
|---|---|
| 24-bit color | A color depth for an image that uses 8 bits for each color (red, blue, green) combining the possible 256 shades to provide a color depth of 16.7 million colors. |
| AC - Alternating Current | An electrical current that reverses its direction at regular intervals (typically 50 - 60 times a second). |
| Access Card | The card for the SmartGuard security system. A cared with embedded electronics that can be removed from the Printer, locking the Printer and preventing unauthorized use. |
| Adhesion | The firm attachment of a material to the card surface, confirmed by using the Tape Test -pulling an applied piece of adhesive tape (Scotch 600 or equivelent) off the card at 1 sec/in to see if any material is pulled off by the tape. |
| Algebraic | A type of color matching that takes the colors value of pixels and applies them to an algebraic equation to adjust the levels of hue, saturation and brightness. |
| ANSI (American National Standards Institute) | The United States Representative to ISO, providing standardization for U.S. Manufactures prior, or in addition, to acceptance by ISO. |
| AS400 | An IBM operating system running on a main frame. DTC500 Fargo Printers are built with fonts saved in the Printer memory so users of AS400 can write escape codes and print from the Printer. |
| ASCII (American Standard Code for Information Interchange) | A standard for processing information in computer processors. An 8-bit character set of 255 decimal numbers, each assigned to numbers, letters, punctuation and special characters. |
| AT | Refers to an IBM standard in early computing with regard to the chipset and function of the parallel port, set up in the BIOS. |
| B (Black) | Black Dye-Sublimation panels are distinguished from the black panel using resin by the use of B for dye sub black. K denotes resin black. |

*Continued on the next page*

## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Barcodes | A series of alternating black and white stripes, of varying widths (each character denoted by a set number and width of black stripes) that allows characters to be optically read by a computer. |
| Batch print | A file sent down from the computer that contains commands to print a number of cards, sequentially. |
| Battery Back-up | A power supply that can keep AC electronic equipment running for a short time when power is interrupted, allowing enough time for the user to save data and close the machine properly. |
| Bi-directional | A communication standard that allows two way data transfer between PC and Printer. |
| BIOS (Basic Input/Output System) | The part of the operating system in a computer that handles communication between the PC mainboard and its peripherals. Typically residing in chip-based, non-volatile memory. |
| Bit | An abbreviation for binary digital. Each bit is an element of information that can have two states: off and on. |
| Bit map | A graphic produced by an array of pixel elements with the color hue, brightness and saturation information stored in bits. The more bits, the more values and thus the greater variety. 1 bit color is black and white, 8-bit color produces 256 shades of gray and 24-bit color can produce 16.7 million colors. |
| Board | A term used for the circuit board, a hard mylar plate made of many layers, that holds the electronic circuit elements and wire traces. |
| Boot-up | A series of operations that the Printer runs through when power is first applied including a series of initializing, status testing and a diagnostics program to ensure a ready state. |
| Buffer | A block of memory, in the Printer or PC, that holds print files until the processor is ready to print them. |
| Cable | A set of conductors wrapped together and often concealed within insulation, used for signal transfer from one device to another, with connectors on either end that allows the cable to be removed. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Cache | A type of memory buffer to store data temporarily, used to hold information that is most often exchanged between contRoller and peripheral, to expedite data transfer. |
| Calibrating | A procedure to adjust an electro-mechanical device so that it operates within established parameters. |
| Cleaning Roller | High tack Rollers positioned just after the input Hopper to lift debris off the card as it rolls over it. A clean card surface improves print quality. |
| CD (Compact Disc) | A 4.75 inch (12 cm) optical disk that stores data, written too and read from using a laser. |
| DMA (Direct Memory Access) | Channels designated within the Windows operating environment that are used for dedicated high-speed communication between the PC and the Printer port. |
| Centronics | A parallel communications interface that has become the standard for connections to Printers, designed by the Centronics Corp. |
| Coercivity | The property of a Magnetic Stripe that indicates the amount of force needed before magnetic saturation, measured in Oersted (Oe). |
| Color matching | The process of adjusting color hue, saturation and brightness, to duplicate a desired color. An algorithm within the Driver, which adjusts the color balance and provides output with the desired color, automates this process. |
| Compressed air | Air stored in a tank or produced by an aerosol can, delivered by through nozzle at a high speed. Used in the Printer to blow out debris. |
| Contrast | The degree of difference in luminance of two areas. |
| Control panel | The panel on the Printer from which the user can control Printer functions. The Printer is usually composed of the control buttons and an LED or LCD display. |

*Continued on the next page*

## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| CR-79 | A card dimension standard of 2.0625" L X 3.3125" W (+/-0.002" W, +/-0.005" L) or 52.400 X 84.150 mm. |
| CR-80 | A card dimension standard of 2.125" X 3.370" (+/-0.002" W, +/-0.005" L) or 53.975 X 85.598 mm. |
| CR-90 | A card dimension standard of 2.375" X 3.625" (+/-0.002" W, +/-0.005" L) or 60.325 X 92.075 mm. |
| CR-100 | A card dimension standard of 2.625" X 3.875" (+/-0.002" W, +/-0.005" L) or 66.675 X 98.425 mm. |
| Cursor | The marker in the LCD Display Window that indicates the active selection. |
| Darkness | A reference to color saturation. |
| DB-9 | A 9 pin, D-shaped connector, typically used in serial port interfaces. |
| DC Motor | A Motor that works on DC with continuous motion. |
| DC (Direct Current) | Electronic flow that is unidirectional, flowing from the positive (+) to negative (-) of a power source. |
| Default | A setting or parameter that comes preset from the factory in Driver or firmware. Performance parameters may be customized in the Driver, but can be reset to the factory values usually through the push of the default button. The default values for the firmware are usually denoted on a label attached to the Printer. |
| Defrag | Abbreviation for defragmenting. The process of reformatting data on a hard Drive so that it uses space more efficiently. |
| DIP switches (Dual In-line Package Switches) | A small array of mechanical switches installed on the board that can be configured to change Printer operations including providing a variety of self-tests. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Direct-to-Card (DTC) Printing | The Direct-to-Card printing process prints digital images directly onto any plastic card with a smooth, clean, glossy PVC surface. |
| Dither | A system of distributing dots to control the hue, brightness and/or saturation. In monochrome printing, this controls the brightness. In color printing, dithering can supply a larger color gamut than non-dithering. In the Driver, dither modes can be selected to provide better image quality depending on the type of image to be printed. |
| Dongle | A peripheral that attaches to a port to act as a key for an installed application. The PC is able to run that application only when the dongle is installed. Typically, it works as a pass-through device and is connected in serial to the parallel cable. |
| Dot | The smallest unit of an image that the Printer is able to produce. The smaller the dot, see dot pitch, the sharper the image. |
| Dot pitch | A measurement of image sharpness denoting the width of the dots that make up a pixel. The smaller the pitch, the sharper the image. |
| Download | The transfer of a data file from one device to the other over a network or cable, typically from the Internet to a PC. |
| DPI (Dot Per Inch) | A measurement of the Printer resolution indicating how many dots a Printer can produce in a linear inch. |
| DRAM (Dynamic Random Access Memory) | A microchip based volatile memory storage device. The Printer uses this to buffer a print job, transferred from the PC, until the Printer contRoller is able to process the packet. |
| Driver | Software utility installed in Windows, that interfaces an application to rasterize image data and include command codes so the Printer can process the file. |
| Duplex Printing | Printing on the front and the back of the card. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Dwell Time | The speed at which the card moves across the lam Roller, measured in seconds/inch (secs/in). This may be adjusted in the Driver to ensure adhesion and card flatness. |
| Dye Migration | The diffusion of dye out of the card surface and into another receptive surface, such as a vinyl pouch card holder, resulting in a faded image. |
| Dye-Sublimation | Also called dye diffusion/thermal transfer, it is the process of heating a dye suspended in a cellulous substrate until the dye can flow, diffusing into the dye receptive surface of the card or InTM. This produces the image in the surface of the card. |
| E-card | An abbreviation for electronic card. A generic term used to reference any card with built-in electronic devices such as smart cards or prox cards. |
| E-card Docking Station | The device in the Printer that accepts smart cards with an ISO smart card contact station. This allows the user to write to the smart card chip with a standard RS-232 interface in the back of the Printer or with the optional built-in encoder. |
| Edge-to-Edge | Refers to the maximum printable area on a card resulting in printed cards with virtually no border. |
| ECP Mode (Enhanced Capabilities Port Mode) | A type of parallel port mode, developed by Microsoft, to increase the port throughput and improve performance. |
| EE Memory | An abbreviation for EEPROM. |
| EEPROM (Electrically Erasable Programmable Read Only Memory) | A microchip based non-volatile memory storage device that can be rewritten in the field. The chip can hold new values as the Printer adapts its operational parameters. |
| Encoder (smart card) | An electro-mechanical interface to transfer data from the PC to a chip or Magnetic Stripe built into the card. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Encoder (wheel) | An electromechanical device, attached to a shaft that detects the change in rotational position, incremented to count ticks per revolution. The Printer's encoder wheel both detects motion and measures the amount of rotation in the movement of the Ribbon. |
| Engine | A generic term for a collection of systems and mechanisms that is dedicated to executing a specific function. A Printer that also laminates would have both a print engine and a lamination engine. |
| EOF (End Of Form) | The trailing edge of the card, detected to indicate when the Printer should stop printing. |
| EPP (Enhanced Parallel Port) | A type of parallel port mode, developed by Intel, to increase the port throughput. |
| EPROM (Electronically Programmable Read Only Memory) | A microchip based non-volatile memory storage device that cannot be rewritten in the field. Firmware for many Fargo Printers is stored on these chips and so a change of the chip is necessary for an upgrade. |
| Escape sequence | A string or control character that indicates to the processor that what follows is a command and not data. |
| ESD (ElectroStatic Discharge) | The discharge of static electricity (high voltage, low current) that can damage electronic devices. |
| Ethernet | A system of networking a series of computers for the sharing of data or peripherals. |
| Film | A thin flexible transparent sheet used to carry dye-impregnated material or resin to be transferred to the card. |
| Firmware | The instruction set, stored in chip memory, inside the Printer that controls functional and operational data. Some models require a chip change for updates; some firmware can be changed by reprogramming from the PC. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Flash Memory | A microchip based non-volatile memory device that holds its data when power is removed. This allows for field reprogramming of the Printer commands, such as Printer firmware upgrades, without the necessity of changing chips. |
| Font | A character set similar in style and form. Fonts can be graphical or mathematical constructs, represented by a series of dots or an assembly of curves and lines. |
| FPGA (Field Programmable Gate Array) | A microchip with configurable logic circuits installed that is programmed to act as the Printer's central processor. |
| Full bleed | Printing that covers the entire card surface. |
| Gamma | The degree of contrast of an image or the display of a monitor determined by the slope of a characteristic curve relating optical density to relative log exposure. |
| Glossy / Matte | A smooth polished surface in comparison to a rougher matte surface. Fargo matte cards have a surface index (Ra) of approximately 65 microinches while glossy have a Ra = 3. |
| Glossy PVC | A card made of PVC with a smooth polished surface (Surface roughness of approximately 0 - 10 micro-inches). This is required for direct to card dye-sublimation printing. |
| Graphical Device Interface (GDI) | A Windows standard for protocol between Drivers and applications and the Windows interface. An application uses a Driver to rasterize the data in the format necessary for the Printer but also for the Windows interface to execute the print commands. |
| Gray Scale | A graduation through the various brightness levels from white to black. |
| Halftoning | A process in monochrome printing that simulates continuous tone by using changes to the distribution of single dots. Increasing the number of dots in a given area increases the darkness even though the individual dots stay the same size. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Hard Drive | A high capacity storage device in a PC consisting of non-removable magnetically encodable platters. |
| Hardware | Physical components of a system such as the Printer, the PC, the power supply. |
| HDP (High Definition Printing™) | The High-Definition Printing process prints full-color images onto clear HDP transfer film (InTM). The HDP film is then fused to the card through heat and pressure via a heated Roller. The Printhead is capable of 256 shades with a sharper print and better color match. |
| Head | Abbreviation for Printhead. |
| Heat sink | A device used to dissipate heat into the ambient. |
| Heat Seal | A resinous film transferred by the Printhead onto the back of an HDP intermediate transfer film to facilitate adhesion. |
| HiCo (High Coercivity) | The coercivity value of magnetic media between 2500 - 4000 Oe (ISO 7811-6). Fargo's High Coercivity encodes at 2750 Oe. |
| HTML (HyperText Markup Language) | A standard protocol used to format text files for use in a browser or on the Internet. |
| HTTP (HyperText Transfer Protocol) | A standard protocol by which computers can transfer data, compatible through multiple platforms. |
| IC (Integrated Circuit) | An electronic device that contains many individual circuits interconnected and placed within a discrete package. |
| ID (Identification) | An abbreviation for identification. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| IEEE 1284 (Institute of Electrical and Electronics Engineers 1284) | A standard method of signaling for a bi-directional parallel interface on personal computers. To ensure proper Printer communications and image output, Fargo recommends a parallel interface cable that complies with this specification. |
| Image | A collection of pictures or graphical elements that compose the visual features on a card. Also refers to the digital representation. |
| Input | Any data or material being transferred to the Printer. |
| Input Hopper | The area of the Printer that stores the blank cards, ready to print. |
| Intermediate Transfer Media (InTM) | A thin flexible material coated with a resin material into which the dye is transferred from the Ribbon by the Printhead. The film is then transferred to the card surface by the hot lamination Roller. |
| ISO | For the Greek, "iso", meaning same. Used to represent data from the International Organization for Standardization. |
| JIS II (Japanese Industrial Standard) | The standard for encoding to a Magnetic Stripe provided by the Japan Standards Association. The single track is as wide as ISO tracks 1 and 2 combined and in the same approximate location as those tracks but on the front of the card. The coercivity level is 600 Oe. |
| K Panel | An area of a multicolored Ribbon (e.g., YMCK) that contains black resin for transfer to the card surface. Also used in reference to the application of preference to items printed on the card - those using the black panel in lieu of a process (YMC) black. |
| Lamination | The application of a film or resinous substance, fused by heat and pressure, to the surface of a card. |
| LAN (Local Area Network) | An array of several computers connected through a series of data transfer cables for the sharing of data and peripherals. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Landscape | A document layout that is viewed with the document's long axis in a horizontal orientation. |
| LCD (Liquid Crystal Display) | A device that contains a liquid crystal between two pieces of polarized film through which reflected or ambient light can pass. When a current is applied, the liquid's polarity changes and blocks the passage of the light resulting in an opaque area of the display. The areas are arrayed to form characters. |
| LED (Light Emitting Diode) | A semiconductor that emits light when a current is applied. |
| Media | A generic reference to anything onto which the Printer can transfer an image including cards, Ribbon and film. |
| LoCo (Low Coercivity) | The coercivity value of magnetic media between 250 - 600 Oe (ISO 7811-2). Fargo's Low Coercivity encodes at 300 Oe. |
| LPT Port (Line Printer Port) | The system abbreviation for a PC's parallel Printer port. |
| Magnetic encoding | The process of orienting successive magnetic bits to produce a serial data string. |
| Magnetic stripe | An area of the card with an applied or impregnated ferrous material that may hold encoded data through a series of prescribed polarity changes. |
| Magnetic Track | An area of a magnetic strip running the length of the card, with a given width and position, constitutes a track. This is the area dedicated to one data string, restricted to specific rules of format. ISO Standards specify three magnetic tracks on the back of a card. The JIS standard specifies one track on the front. |
| Magnetic Verify | A process to confirm proper magnetic encoding. After encoding, the information is read off back and compared to the intended string. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| MB (Megabyte) | A unit of storage that equals 1,048,576 bytes. |
| Memory | A generic term for any device that stores digital information using magnetic media or digital chip storage device. |
| Menu | A descriptive list of headings above nested functions that aid navigation to a specific operation. These are found in computer applications, with the heading at the top of a subset of like functions. They are also on the Printer LCD control panel. |
| Monochrome | An image composed of a single color. |
| Network | A series of computers connected by data transfer cable for communication and sharing of functions and peripherals. |
| Oersted (Oe) | The unit of magnetic field strength named after Dutch scientist Hans Christian Oersted who found the science of electromagnetism. |
| Offset | The prescribed distance between a reference point and the target point. The offset in card printing may refer to the position of the image relative to the leading edge or the distance of the start of magnetic encoding from the leading edge of the card. |
| O-Ring | A rubber ring used as a belt in several media driving applications. |
| OS (Operating System) | The instructions installed on the computer hard Drive that run the computer's operations and applications. The Driver used for any given OS will differ from other platforms. The correct version Driver must be loaded for the Printer to interface with the OS and the application to print. |
| Output | Any product of the Printer including card image, encoded data and lamination. |
| Output Hopper | The portion of the Printer that accepts the completed cards. |
| Overlay | A resin-like substance that is transferred by the Printhead to the card surface over a printed dye image to prevent image fading, increase abrasion durability and prevent dye migration. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Oversized Cards | Oversized cards are used for more efficient visual identification and are available in many non-standard sizes. The most popular sizes are CR-90 (3.63" x 2.37"/92mm x 60mm) and CR-100 (3.88" x 2.63"/98.5mm x 67mm). |
| Overlaminate | Protective clear or holographic material to increase security and durability applied over the printed surface with a hot Roller. |
| (Thin Film) Overlaminate | A 0.25-mil thick resin material that enhances card security and durability applied over the printed surface with a hot Roller. Available as clear or with embedded holographic-type security images. |
| Parallel | A method of data transfer in which serial data is divided into sections and sent simultaneously down parallel wires to speed transfer rate. |
| Parallel port | A communication socket on a device that allows for parallel data transfer. |
| PC (Personal Computer) | A stand-alone, programmable, electronic device that can store, retrieve and process data consisting of a CPU, mouse, keyboard and monitor. |
| PCB (Printed Circuit Board) | A solid, multi-layered plate on which electronic elements are attached, either through the board or on the surface. |
| Peel | The removal of a film or Ribbon from a card surface (at a perpendicular angle) to ensure proper transfer, then separation, from the card surface. |
| Peel-Off | A bar on the lamination section that holds the film at the correct position and provides proper peel angle. |
| Peripheral | Any device that is attached externally to a PC. These often share the same data cable or port as a Printer and may be the source of communication problems. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Pinch Roller | A free spinning (non-Driven) Roller that presses the card against the Drive Roller, on the opposite side, to ensure an adequate normal force for proper traction. |
| Pixel | Short for picture element. The smallest element of a graphic. |
| Platen | The hard rubber Roller that Drives the media through the Printer, providing support to the backside of the media during printing or laminating. |
| PET | Abbreviation for polyester terephthalate, often called polyester. Sheets of PET are laminated with sheets of PVC to produce thermal acceptance composite cards. |
| Port | A communication interface, serial or parallel, used for the transference of data. |
| PolyGuard Overlaminate | A 1-mil or .6-mil thick polyester material that enhances card security and durability applied over the printed surface with a hot Roller. Available as clear or with embedded holographic-type security images. |
| Portrait | A document layout that is viewed with the document's long axis in a vertical orientation. |
| Potentiometer | An electronic resistor with a variable resistance value that can be mechanically set. |
| Print Driver | A software utility that serves as an interface between the Printer and the Windows GDI (Graphical Device Interface), making the Printer's functions available through the software application. It also provides the format information for the rasterizing of the print file including any necessary escape or function commands. |
| Print Job | A file of one or more cards for the Printer to print, including image data and Printer functions, transmitted through the parallel interface and at times stored temporarily in the print buffer and spooler. |
| Print Server | A device used to connect and control a Printer on a network. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Printhead | The device on a Printer that produces the image on the media. |
| PVC | Abbreviation for polyvinyl chloride, often called vinyl. PVC is the component of the 0.002" thick clear, dye receptive film on the surface of the identification card and is the primary component of the identification card cores. |
| Queue | A sequence of files or sets of data, awaiting transmission or processing. |
| Proximity (“Prox”) Card | Proximity cards allow access and tracking utilizing contactless technology, usually by communicating through a built-in antenna. |
| Prox Card Encoder | The Fargo prox card encoder uses an HID ProxPoint® Plus reader mounted on the e-card docking station inside the Printer/encoder. The ProxPoint is a "read only" device producing a Wiegand signal that is converted to RS-232 using a Cypress Computer Systems CVT-2232. Application programs can read information from HID prox cards via a RS-232 signal through a dedicated DB-9 port on the outside of the Printer labeled "Prox." |
| RAM (Random Access Memory) | A storage device for digital information to be held temporarily, to facilitate processing. |
| Rasterize | The process of converting the elements of a graphic into a bitmap to be printed. |
| Reboot | Cycling the power to the Printer so that it resets and reinitializes. |
| Registration | The quality of the alignment of the separate primary-color images: YMCK. |
| Resident Font | A set of characters loaded into the Printer memory that can be programmed to print those characters on the card without rasterizing the image. |
| Resin | A semisolid material. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Resolution | The number of individual pixel elements in a graphic, taken over a given length, used to indicate the sharpness of the picture and the level of detail. The number of elements in the Printhead determines Fargo Printer resolution. |
| RFI (Radio Frequency Interference) | Electromagnetic waves radiated by poorly shielded cables or electronic devices that interferes with the operation or data transfer of another device. |
| RGB (Red/Green/Blue) | The three primary colors of the luminance, or additive, model. Combinations of these three colors can produce practically all the colors of the spectrum that humans can detect. Computer monitors operate on an RGB model. |
| Ribbon | The dye impregnated film that is used for color printing. |
| Ribbon cable | Parallel wires held flat in a row by plastic insulation. |
| RibbonTraq | A Fargo Electronics method of placing bar code-like marks on the transition area between color panels. These marks are arranged for detection by a reflective Sensor array for the identification of Ribbon type and the Ribbon position. |
| RMA number (Return Merchandise Authorization number) | A number, acquired from Fargo Support, that authorizes the return of merchandise for repair or credit. |
| Roller | Elements of the Printer used for the transport of media consisting of a rotating steel shaft (for Ribbon) or a rotating steel shaft with a rubber cylinder installed at the shaft midpoint (for moving cards). |
| RS-232 | An interface standard, established in 1969 by the Electronic Industries Association, regarding the connecting of computer peripherals. |
| Saturation | A measure of the degree of color, from gray, with the same brightness. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Self-test | A pre-determined print file used to confirm Printer operation typically sent from the Driver or stored in the Printer's memory. |
| Sensor | An electro-mechanical/electro-optical device used to indicate a change in state in the Printer such as when a card reaches a certain location. |
| Serial communications | The transfer of data, one bit at a time and in sequential order, using a single wire. |
| Serial interface | A sub D 9 pin input/output port on the Printer, used for serial communication with the PC for AS400 operating systems or for e card encoding. |
| SIMM (Single In-Line Memory Module) | An array of memory chips, attached to a printed circuit board that installs in a slot on the main board. |
| Simplex | Single-sided printing. |
| SmartGuard | An application from Fargo Electronics that allows users to prevent access to the Printer through the use of a personally encoded smart card. |
| SmartGuard™ | SmartGuard is a Printer security option that uses a custom access card and a built-in reader to restrict Printer access. Only a valid access card can enable the Printer to print cards. |
| SmartShield™ | This option allows the Printer to print custom, security images on the card that reflect under a black or UV light source. |
| Smart Card | Smart cards have an embedded computer circuit that contains either a memory chip or a microprocessor chip. There are several types of smart cards: Memory, Contact, Contactless, Hybrid (Twin), Combi (Dual Interface), Proximity and Vicinity. |
| Software | Instructions saved in computer memory that directs the computer to perform certain tasks and functions. |
| Spooler | A computer application that allows the spooling of print jobs. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Spooling | Rather than moving a print job directly to the Printer, the job is written to the disk so that the user can access the application faster while Windows takes care of printing in the background. |
| SS (Start Sentinel) | The character denoting the end of a magnetic data string. |
| Stacker | The device that moves the finished cards onto the output column, ordering them "First In, First Out". |
| Stepper Motor | A Motor whose shaft turns in discrete steps, rather than continuously. |
| String | A sequence of characters that form a line of data. |
| Surface mount | A method of mounting circuit elements onto the surface of a circuit board, attached at solder pads, rather than through holes in the board. |
| Surge Protector | An electronic device, placed in serial to the Printer's power supply, that prevents damage to the Printer from electronic surges and electrical current that is outside of the normal parameters. |
| Switch box | An electromechanical device to which a user may connect several peripheral devices to the parallel port simultaneously, yet using the selector switch to designate the active port. |
| TAC | Thermal Acceptance Composite cards. Card stock produced by laminating sheets of PVC with sheets of PET for better thermal distortion resistance. Ultra III cards. |
| Temp file | A temporary file, generated automatically by Windows, to store the information for an active document. Windows should delete these files when the application is closed. |
| Test-print | A file stored in or generated through windows that is sent to the Printer to test basic functionality. |
| Thermistor | An electronic resistor on the Printhead with a resistance value that varies in proportion to the heat to which it is exposed. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| Thermocouple | A device for measuring temperature using a junction of two wires of dissimilar metals that produce a voltage when heated that varies proportionally with the temperature. |
| Through-hole | A method of mounting circuit elements with the leads passing through holes in the circuit board and soldered on the opposite side. |
| Timeout | An interruption of a print job that occurs when a function is not completed in the time allotted by the operating system. |
| TOF (Top of Form) | The leading edge of the card, as it travels through the Printer. |
| Track | The area on a Magnetic stripe designated to contain the magnetic data string. |
| Troubleshooting | The process of investigating and determining the cause of a problem. |
| TrueType (TT) | A font format that produces each character using a mathematical equation, rather than a graphical representation, resulting in a much sharper, cleaner image. |
| UltraCard | The Fargo brand of card stock, recommended for use in Fargo Printers, with the necessary glossy surface and composed of PVC. |
| UltraCard III | The Fargo brand of card stock, recommended for use in Fargo Printers that laminate, with the necessary glossy surface and composed of PVC and PET to prevent heat distortion. |
| Update | The process of installing a new revision of software or firmware to implement new changes to the Printer's command codes and procedures. |
| UPS (Un-interruptible Power Supply) | An AC power supply, typically powered by batteries, which provides temporary power to the PC or Printer during an interruption of the supply voltage. |

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## Glossary of Terms (continued)

| Term | Definition |
|---|---|
| USB (Universal Serial Bus) | A 1.5M/sec (12Mbit/sec) serial communication interface that can support 127 separate devices consisting of 4 wires: power, ground, data in and data out. |
| Virtual Memory | A technique used by Windows when chip memory is exhausted, in which data is written to the hard to hold data temporarily and support Window's operations. |
| Wrinkle | The appearance in the card image of wavy or arched lines, either colored or clear, caused by improper film or Ribbon tension. |
| YMC | The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C). |
| YMCK | The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C), Black (K). |
| YMCKH | The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C), Black (K), Heat Seal (H). |
| YMCKK | The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C), Black (K), Black (K) (the second K is for backside, black only printing). |
| YMCKO | The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C), Black (K), Overlay (O). |
| YMCKOK | The designation of colored Ribbon by the panels of color in the order in which they are printed: Yellow (Y), Magenta (M), Cyan (C), Black (K), Overlay (O), Black (K) (used for backside, black only printing). |
| | |

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